

*HEALTH
AND HANDWRITING*

*An Annotated Bibliography
Of Forensic, Legal and
Med / Psych Periodical Literature*

Marcel B. Matley

*Third Edition
Much Enlarged*

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Published by:
A and M Matley
Handwriting Experts of California
San Francisco, CA

Studies in Questioned Documents: Number Five

*Health and Handwriting
an Annotated Bibliography*

By

Marcel B. Matley

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DEDICATION

*This monograph is dedicated to
the memory of
Ordway Hilton
who, through his many writings,
has been and remains a teacher to all
who aspire to excellence
in questioned documents examination.*

INTRODUCTION TO FIRST EDITION

The document examination and legal literature has a good number of articles on health and handwriting. Both the problems health causes in handwriting authentication and how handwriting can indicate such problems have been researched to some degree.

It is essential for the document examiner to know of these things to avoid error in making handwriting identification. It is also useful to be able to provide recognized and authoritative writings in the field to support one's conclusions.

This paper is a reprint of a three-part bibliography of legal and forensic articles on the subject. It first appeared in the May-June, July-August and the September-October, 1990 issues of the *AHAF Journal*. I wish to thank Sheila Lowe, the editor, for publishing it originally.

The material is drawn from my *Witnessing to the Truth of Documents; an Index of Periodical Articles in English on Document Examination, Forensic Handwriting Analysis and Expert Testimony*, now retitled as *QDE Index*. The material was compiled through library research over a four year period.

For those articles which I have been able to study closely, I offer some commentary and discussion. As more materials come to hand, they will be shared with you in future offerings in the *AHAF Journal*. Among such will be articles from medical and psychological journals.

Researchers in the medical, psychological and educational fields have done much good work which can be of value to the forensic handwriting expert. The primary reference for citations in the medical field is *Index Medicus*. The primary reference for citations in psychology is *Psychological Abstracts*. Both of these works are international in coverage and include foreign language periodicals.

To find these and similar bibliographic guides, go to the local main library and public academic libraries. Private academic libraries will sometimes permit outsiders access to their collections. It never hurts to enquire.

For legal references, the local county law library is the first call to make. Public schools of law, at least in California, are open to the public. There are reasonable rules on use, and most often borrowing is forbidden. Copying machines are universal in libraries, and one should adhere strictly to the rules for fair usage of copyrighted material.

By writing to the journal from which you want an article, you can obtain information on reprints. Some journals, like *Journal of Forensic Sciences*, end each article with information on how to obtain reprints.

INTRODUCTION TO SUPPLEMENT OF FIRST EDITION

These articles are all from the *Canadian Society of Forensic Science Journal*. Only one was annotated earlier and is given a more extensive annotation. Many of these articles, which mostly represent reports on original research, have a common failing. They do not first research the literature and build on what others have already established. That is an inexcusable fault in a research project, the value of which is thus greatly reduced. The assumption is that since the author knows of no research by other document examiners, there has been no such research. Graphologists often voice the same assumption.

However, education people research handwriting relative to teaching and student performance. Medical people research it relative to health. Psychologists research it relative to mental and emotional problems. Calligraphists research it from the viewpoint of aesthetics and history of art. Paleographers have researched it historically and culturally. *All such research is handwriting science research*. It is research that can teach us and serve our needs, which one can lay claim to as Columbus claimed the lands which the Indians had well in hand. The conquest of new worlds is mostly the claiming of old ones for new purposes.

INTRODUCTION TO SECOND EDITION

The supplement along with several new items has been integrated into one text. Although this is a bibliography of periodical literature, there are a few book items I wish to recommend to you. These have proven of practical value in actual work. They do not equip one to give any kind of a diagnosis. What they do is alert one to the proper enquiry to make. Thus you will know something is wrong physiologically, and you will know when to be cautious and what information is required for resolving the handwriting problem. If the information is not forthcoming, you will know the proper qualifications to make in your opinion. I assure you, each of these books has earned its price a hundred times over.

Editor's note: The list of books referred to has been incorporated into the expanded list which begins on page 11.

INTRODUCTION TO THIRD EDITION

The list of books in the second edition has been increased. Rather than being specific recommendations, some of them are more illustrative of the kind of reference works the handwriting expert would want in one's professional library. Those which I specifically recommend as one of a kind are so indicated.

No single indicator of a health problem is ever self-sufficient proof. As a general rule, although all of the listed indicators for a particular condition need not appear together, even if they do they are not conclusive proof. The reason is simple, but like many simple things easily overlooked: Each indicator and each set of indicators can be the effect of two or more different causes. So, for example, neuroleptic agents, given in relief of certain psychotic conditions, will bring about the same effects in handwriting as will Parkinsonism. L-dopamine, given in relief of Parkinsonism, will bring about the same effects in handwriting as certain psychotic conditions will. However, to ignore the indications of these factors would be inexcusable. One would be obligated to make appropriate enquiries in order to resolve the matter and to bring the potential issue to the attention of the client.

AMERICAN DRUG INDEX. Published annually by Facts and Comparisons, A Wolfers Kluwer Company, St. Louis, MO.

One can look up brand or generic names. Ingredients, cross references and brief descriptions of form in which the medication comes are given. The prior year's edition can be obtained at a substantial reduction in price.

ERHARDT, RHODA PRIENT. *Developmental hand dysfunction; theory, assessment, treatment*. Illustrated by Gary Baune. Tucson, AZ, Therapy Skill Builders, 1982, 1989.

This is an example of the kind of material one can find in medical book stores or in the medical section of general book stores. Texts on movement disorders will also be of benefit for their segments on such topics as writer's cramp, handedness or ataxia.

GRAY'S ANATOMY. Periodically issued in newer editions by Crown Publishers, Inc., New York.

Some kind of basic anatomy book is essential for the understanding of the movements of handwriting. One need not be an anatomy expert, with the names of

every nerve, muscle, tendon, bone and so on at one's tongue tip. However, I am a firm believer in the need for a handwriting expert to have a functional understanding of the anatomical aspects of handwriting. There are also anatomy books specifically on the hand and other texts on abnormalities of the hand. They can all contribute to our understanding of the writing movement.

THE MERCK MANUAL OF DIAGNOSIS AND THERAPY. Periodically updated by Merck Research Laboratories, Rahway, NJ.

The first edition was in 1889 and newer editions are issued every five years or so. Symptoms are given for almost any illness the most dedicated hypochondriac would ever have thought of. For the handwriting expert, the information provides clues to how handwriting might be affected. In a case in which a woman afflicted with Friedreich's ataxia was accused of writing anonymous notes and threatening graffiti, *The Merck Manual* guided the development of the investigation of the writings and preparation of the evidence of her innocence. Although one must never presume to act the medical expert, one must not act in ignorance of essential background medical information relevant to the case.

PHYSICIANS DESK REFERENCE. Published annually by Physician's Desk Reference in Oak Brook, IL.

This work is the most recognized of a type of reference which is essential when you are faced with writing made while on medication. For each drug the adverse reactions and other factors are listed which could affect the handwriting motor sequence. You should enquire about medications and health conditions if the handwriting has any indication that such might be present. You will not need to buy the current edition of this reference, only a reasonably recent one. If you count physicians among your friends, you might even be able to obtain a gift copy of the newest edition.

THE PILL BOOK. New editions issued approximately biennially by Bantam Books, New York.

This does pretty much what *Physician's Desk Reference* does, though more briefly and at a much reduced cost. The text also seems less technical and specifically designed for the lay person.

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SAUDEK, ROBERT. *Experiments with handwriting*. Reprint by Books for Professionals, 4600 Valley Hi Dr., Sacramento, CA 95823.

One simply has not mastered handwriting identification until one has mastered this book. It is highly recommended in the annotated booklist authored by Irby Todd for the Secret Service course on questioned documents. In several places Saudek discusses the effects of health on handwriting. As Todd indicates, the information on handwriting by the blind is based on original, primary experimentation. Saudek's discussion of the signs for fast and slow tempo in handwriting also indicates which signs can be related to ill health.

STEDMAN'S MEDICAL DICTIONARY; A vocabulary of medicine and its allied sciences, with pronunciations and derivations. Periodically issued in newer editions by The Williams & Wilkins Company, Baltimore.

The document examiner needs some basic medical dictionary, and Stedman's seems to be the front runner of the genre.

TOOMEY, ROSE LAJOIE. *Health clues in handwriting*. Third printing with additional notes, 1990. Published by the author. 665 San Roldolfo Dr., Ste. 124, Solana Beach, CA 92075.

Twenty-five health clues are presented with their theoretical indications. The book was the result of empirical, primary research in cooperation with medical professionals. A rigorous methodology was followed, which, unfortunately, the book does not describe, nor were the results first published in a scholarly journal. However, if you master the clues you will know when you had best enquire about the health condition, medication or chemical intake of the writer. Thus this guide is a tool during the process of examination. For those examiners who are simply prejudiced against any graphologist, I urge you to swallow your prejudice for this occasion, because the clues you can learn from this book will help guard you from blundering and will augment your ability to earn income. CAUTION FROM THE AUTHOR: Do not presume to give medical diagnosis from the handwriting!

WARFEL, JOHN H. *The extremities: Muscles and motor points*. Philadelphia, Lea & Febiger, 1993.

Chapters 1-8 consider the upper extremities, culminating with the muscles and tendons of the hand. Major nerves and blood vessels serving the extremities are also indicated. The diagrams for the arm, hand and fingers are much clearer for

the non-specialists than the ones Gray's offers. Cross-references are given to the anatomy texts of Gray, Grant and Netter. The illustrations could be used to generate exhibits in court or presentations at meetings if such detail were required.

WELLINGHAM-JONES, PATRICIA. *Drugs and handwriting*. Published in 1991, it is still available from PWJ Publishing, PO Box 238, Tehama, CA 96090.

The heart of this fine book is a list, by generic name, of several hundred drugs in a chart showing how they affect several aspects of the handwriting motor sequence. It has solved cases for me. For example, a lady supposedly signed her house away while hospitalized for her last illness. The questioned signature showed better control than did the exemplars closest to it. The attorney gave me what data he had on her medications, which this book indicated all had common deleterious effects on the motor sequence, such that she ought not to have been able to write at that time. I strenuously urged that the hospital records be subpoenaed. When obtained, they showed that whenever a patient signature was required on a form there was a note: "Patient unable to sign." I use this reference routinely when writing made under medication is involved. It was recommended in the book review appearing in *Journal of Forensic Sciences*.

It is hoped that the above listing will inspire the reader to build a professional collection of useful reference texts. Not to know much of what other disciplines have to teach us of handwriting when beginning one's career is expected. To remain unknowing after several or more years is to cultivate inexcusable ignorance. It may well be expert malpractice to harm others by such ignorance.

THE ANNOTATIONS

All citations in prior editions are included herein. The coverage has been expanded to include more med/psych papers and a section on case law. The med/psych material has been more critically chosen than forensic or legal papers, the latter being included as long as they touch on the topic of health and handwriting in any way at all. The former were selected if they had something directly useful in the actual practice of handwriting identification, particularly if they offered systematic observations which confirm or extend present theory or practice in the expertise. I have not hesitated to draw object lessons from some papers cited. The annotations are often unashamedly editorial.

Please bear in mind that the papers cited herein are being considered in a very narrow way. They all have dimensions and positive qualities which are outside the scope of the topic of the monograph, and those I necessarily ignore by and large. It is assumed that the reader would come up with a somewhat to a vastly different evaluation of most items after reviewing them personally. If so, I would be the last to argue with the differing view, and indeed, having heard of it, I would consider this monograph a success because it occasioned such an independent investigation of the rich lore of intellectual gold waiting for the handwriting expert to prospect, mine and turn into evidential coin.

Some items have no annotations. That is because either my copy of such items or my notes on them turned up missing at the critical moment of compilation. The fourth edition will surely have again twice the material of this one and hopefully annotations for all items cited. However, I did not want to deprive you of a citation which might just be the key to a problem you face.

1. ACADEMIC THERAPY QUARTERLY. 4:35-8, Fall 1968. *Handwriting for the learning disabled*. By Norman Levine and Joan Carter.

The entire issue is dedicated to issues on handwriting. In the paper cited, one method used in teaching the learning-disabled to write is described. Unfortunately, only two very minimal illustrations are given, neither the work of students. However, the handwriting expert might need some idea of the special needs of these students and how those needs are met.

A point of irony. The last sentence of the very first paragraph states: "With the impact of new electronic communications equipment and supplies, handwriting might well become an obsolete skill in the next few decades." Having been written three decades ago, one might expect to see some fulfillment of this

prediction. On the contrary, handwriting is critical at least in the computer course my niece takes at San Francisco City College. If a student cannot handwrite adequately, the student could not possibly pass the course.

2. ACTA PHARMACOLOGICA ET TOXICOLOGICA (KBH). 32:161-78, 1973. *Mental and psychomotor effects of diazepam and ethanol.* By J. F. Haffner.

In tests based on handwriting tasks, alcohol caused subjects to make more attempts in the same amount of time but to increase the rate of error. Diazepam caused them to make significantly fewer attempts but to increase the time spent correcting errors.

3. ACTA PSYCHIATRICA BELGICA. 78:19-36, Jan.-Feb. 1978. *Purely neuroleptic effects and its relation to the "neuroleptic threshold."* By H. J. Haase.

This paper is included for several reasons. It shows that handwriting has been subjected to scientifically rigorous study with results which give support to some assumptions employed by forensic handwriting experts. It illustrates the neurological sensitivity of handwriting to medication. It shows how handwriting can assist diagnosis within a controlled medical environment and/or in conjunction with other medically reliable data. It illustrates how medication can cause a handwriting change which might be taken as a significant difference indicating a different author. It shows how more than one factor can cause the same complex of changes in handwriting, since neuroleptics have the same affects on handwriting as Parkinsonism. The following comments are adapted from a paper on neuroleptic agents and handwriting.

This paper summarizes the results from "more than 50,000 investigations with 30 different short-term and long-term neuroleptics [which] have been carried out on approximately 850 schizophrenics whose extrapyramidal fine movements were tested according to the author's handwriting-test." Handwriting proved more reliable and precise as a measure of the fine motor movements than walking gait. The Haase writing test follows a rigid procedure:

1. Samples are taken daily at the same time and under the exact same conditions with the same text and materials;
2. Samples are taken two or three days prior to medication with the neuroleptic agent, during a period in which no other medications are given;
3. Dosage is increased until the individual's writing sample indicates the "neuroleptic threshold" with appearances of mild Parkinsonian traits;

4. Handwriting samples allow monitoring of medication to assure the desired beneficial effects are achieved.

Eleven sets of handwriting samples are reproduced, each shows smaller writing under medication. The reduced size is proportional, that is both horizontal and vertical expansion are proportionately reduced under medication. From the reproductions, other changes in writing seem also to be the same in all samples, such as reduced variation and less perseveration and/or fewer incorrect strokes. At least some of the before-medication samples also appear to have stronger final emphasis of some type.

4. ACTA PSYCHIATRICA ET NEUROLOGICA (COPENHAGEN). 18:344-75, 1943. *Hereditary background of handwriting; an investigation of the handwritings of mono- and dizygotic twins*. By J. H. Wanscher.

In a fairly well detailed and generously illustrated report on his research, the author summarizes on page 374: "13 out of the 29 pairs of monozygotic twins proved to write almost identically, while only 4 out of the 31 pairs of dizygotic twins did so. Of the random pairs, only 1 out of a total of 63 could be reckoned in this class." It is then said that twins had word spacing more alike to each other than one of the twins had to the average for their classmates. The conclusion drawn was: "In both series this 'coupling' appeared to be greater between monozygotic twins than between dizygotic ones, indicating the true hereditary background of the handwriting."

It seems unclear whether the author means that the handwriting as a whole has a hereditary background or just the particular measurements made in this study or just in the case of monozygotic twins. The first of the three seems to me to be a rather bold, if not rash, conclusion for the data reported. Additionally, any assertion regarding heredity would only be reasonable if alternative probable causes are eliminated, such as twins deliberately "putting on" the same style handwriting in the way they put on the same style clothing. Would anyone assert from the fact that most monozygotic twins dress in the same style that clothing is hereditary because, as compared to dizygotic twins and randomly paired non-twins, they do so far more often?

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5. ACTA PSYCHOLOGICA (NETHERLANDS). 44:165-73, 1980. *Sequential motor ability of left-handed inverted and non-inverted writers*. By John L. Todor.

This research built on the work of Levy and Reid. See Item 76. Tests were given to 14 female college students who were all left-handed, 7 with inverted pen holds and 7 with non-inverted. The more difficult the task, the better the performance of the non-inverted subjects, a finding which held up when the same tasks were performed with their right, non-dominant hands. The conclusion was that the non-inverted left-handed writers had a substantial performance superiority which was related to the brain. However, it might just have well been due to the physiological convenience of one's habitual manner of moving. In other words, just because brain organization may determine one's preferred pen hold, the pen hold and not the brain organization might determine difficulties in complex movement tasks. The intellect of both groups could still very well be equal in mental processing tasks qua mental.

An analogy would be that those with broken arms have far more difficulty in tasks of formal testing than those without, or that those who learned English as children have a far easier time with English language tasks than the mute or those who learned English late in life. Nevertheless, the research proves that some difficulties in handwriting are inherently attributable to the physical manner of writing, and thus can be indicative of authorship and suggestive of a non-standard, but habitual, manner of writing.

6. A PSY. 54:263-83, 1983. *Agraphia and micrographia: clinical manifestations of motor programming and performance disorders*. By David I. Margolin and Alan M. Wing.

Volume 54 is one issue which is devoted entirely to handwriting issues.

In a two-part case report, the first discusses motor control problems in handwriting subsequent to a right hemispheric stroke. Several illustrations of writing tasks show the facts very clearly. The second discusses 5 Parkinsonian patients. Data is given on size, proportions and speed of writing. Computer generated displays show pictorially the height and duration of strokes. Changes were related to medication. The study of Parkinsonian writing with and without medication related slowed tempo to presence of tremor, confirming what Saudek said, that writing with tremor is necessarily a primarily slow writing, whatever indicators of speed might be present.

The med/psych periodical literature is rich in case reports of deterioration of handwriting due to various kinds of brain traumas. These reports were able to tie the changes to the specific area of the brain damaged and make reasonable inferences therefrom as to location of specific task controls in the brain. In a case of a writer with brain trauma of some kind, the expert would not do ill to research papers reporting the same or similar traumas and their effects of handwriting. To include in this bibliography annotations of all such reports would be to write a multi-volume work.

7. AMERICAN BAR ASSOCIATION JOURNAL. 45:931-4, September 1959. *Mental disorders: their effect upon handwriting.* By Hanna F. Sulner.

The indicators which she gives for “mental disease or mental or emotional disturbance” fit well with the list Albert S. Osborn gives in the second edition of “Questioned Documents.” The major indicators can be summarized and restated thus:

- Perseverations
- Omissions
- Transpositions
- Undecipherable writing
- Lack of control occurring in otherwise controlled writing
- Unnecessary strokes
- Breaks in the writing
- Involuntary movements

Obviously, here as in all subsequent listing of “indicators,” each factor in itself is just that, an indicator, but not a proof, not even positive evidence. There must be a combination of related indicators, and even then the handwriting expert is not to make a “finding,” but it is incumbent on the expert to raise the reasonable question and seek supplemental information from sources which can be reasonably relied on in developing the expert opinion. The expert can also address the reasonableness of a story as to how the handwriting was made.

8. AMERICAN JOURNAL OF FORENSIC MEDICINE AND PATHOLOGY. 46:785-92, Sept. 1992. *Effects of aging on adult hand function.* By Lori M. Shiffman.

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9. AMERICAN JURISPRUDENCE. PROOF OF FACTS. FIRST SERIES. 11:159-271. *Testamentary capacity*.

On page 215 there is a brief discussion on using handwriting to prove testamentary capacity. The focus is on psychological capacity.

10. ARCHIVES OF NEUROLOGY. 41:889-90, August 1984. *Seizures, dyslexia and dysgraphia of psychogenic origin*. By Deshaw R. Master and W. Alwyn Lishman.

11. ARCHIVES OF NEUROLOGY AND PSYCHIATRY. 50:439-49, 1943. *Muscular tension of psychiatric patients: pressure measurements on handwriting as an indicator*. By Jurgen Ruesch and Jacob E. Finesinger.

A group of 40 patients with various diagnosed psychiatric and neurologic conditions were tested for grip pressure, pen point pressure, and time needed to write a set text. Compared to 12 control subjects, the patients took longer, had greater grip and pen point pressure. They also had a “greater number of phases of grip pressure;” that is, they had a significantly greater number of changes in the amount of grip pressure more often than the control subjects had.

The patients were asked for their subjective feelings of tension. They were aware of increase and decrease of tension relative to increase and decrease of pressure applied by pencil to paper but not relative to grip pressure. The authors state on page 448: “On the other hand, one may observe that they may squeeze their fingers on the shaft of the stylus to a considerable degree without noticing it.”

Handwriting experts know that the amount of grip pressure has marked affects on the handwriting, increased grip pressure usually causing slowed writing, unvaried penpoint pressure, muscle tremor, and other traits generally identified as indicia of falsity. This research report both supports traditional assumptions in forensic handwriting identification and warns us from simply assuming that the indicia of falsity are per se evidence of falsity. This paper also gives some support to one of the traditional indicators of writing under stress or undue influence.

12. AUDIOLOGY AND HEARING EDUCATION. 4:12-24, June-July 1978. *The deaf's child learning of English morphology*. By G. O. Bunch and B. R. Clarke.

Generally deaf children through age 17 make mistakes in number (plural/singular), verb tense and possessives. These mistakes have been found to

show up in handwritten texts of the hard of hearing, as indicated by Item 20 and others.

13. BRAIN. 118:1461-72, 1995. *Primary writing tremor*. By P. G. Bain, et al.

Patients with primary writing tremor had writing speeds almost half of that of healthy control subjects, thus confirming Saudek's rule that tremorous writing is always primarily slow. Seven patients had some relief of writing tremor with intake of alcohol, three of them expressing concern for their excessive drinking. This gives some confirmation to the findings of research, such as reported in Item 37, that in habitual drinkers withdrawal induces tremor but the first drink relieves it. The findings of this research on tremor and speed of writing and on alcohol and relief of tremor illustrate how other disciplines may offer scientific support for many of the interpretative assumptions which handwriting experts employ.

14. BRAIN AND COGNITION. 1:158-64, April 1982. *Relationship between birth stress and writing hand posture*. By Alan Searleman.

1203 individuals were studied. Birth complications were associated with use of an inverted hand posture while writing. This occurred more often in males and in left-handers. There are many published studies in the psychological literature on hand posture during writing, mostly stemming from the ground breaking work of Jerre Levy. See Item 76. These types of studies can contribute to our understanding of the dynamics of handwriting. They also open a way for handwriting experts, particularly those who have aversion for graphology, to develop a psychology of handwriting which does not involve character analysis but is rooted in and related to physiological factors.

15. BRAIN AND LANGUAGE. 4:382-9, July 1977. *Different form of agraphia: syntactic writing errors in patients with motor, speech and movement disorders*. By John H. Ferguson and Francois Boller.

16. CANADIAN JOURNAL OF CORRECTIONS. 1:62-9, July 1959. *Psychology of the compulsive forger*. By Maurice Gautier.

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17. CANADIAN SOCIETY OF FORENSIC SCIENCES JOURNAL. 4:118-20, 124-32, Dec. 1971. *Determination of sex from handwriting*. By J. H. Hodgins.

Besides the mistake of not researching the literature for previous related research, the author made the mistake of using samples which were not fully natural, valid samples. In determining the sex of the writer, expert document examiners did no better than laypersons. Women did a bit better than men. On balance there was a 65% success ratio.

The findings confirm what early graphological research discovered. 65% is decidedly better than chance. But it is what shrewdness, not science, can account for. For document examination, citing this study can explain to clients and the courts the limits of the practice.

18. CSFSJ. 4:120-1, 133-44, Dec. 1971. *Low blood sugar levels and handwriting*. By C. S. Towson.

The object of the research was to determine the effects which low blood sugar has on handwriting. Certain factors vitiated any results of the study:

1. Subjects sat in a Lazy Boy chair and used lap boards to write the samples; that is already an impairment;
2. The terms for ranking degrees of impairment seem nebulous, without precise guidelines; one rater's interpretation might well not be another's;
3. Since the normal samples were randomly mixed in with the low blood sugar samples, the norm for judging impairment had to be a theoretical or imaginary writing;
4. The possibility of other health factors being present was not addressed;
5. The various ways in which low blood sugar levels were induced might have affected the resulting impairment.

One conclusion drawn was that the theory that an examiner can differentiate between normal and low blood sugar level writings per se is incorrect. But the very methodology of the study prevented valid testing of that theory.

The one reliable conclusion demonstrated is that normal and abnormally low blood sugar level writing samples by the same person can be identified as being by the same person. Seven indicators relied on by the examiners are given. But they are not signs of low blood sugar level, only indicators of a possibly impaired writing.

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19. CSFSJ. 4:121-3, 145-53, Dec. 1971. *Abnormal cardiac rhythm and handwriting*. By J. L. G. Remillard.

This is not about heart illness. It is about impairment in handwriting after healthy individuals exercise strenuously and write while their heart beats are at a high rate.

The conclusion is that in healthy young males strenuous exercise affects the writing, but identification is still possible. The conclusion, that specific characteristics of increased heart beat on the writing are the same as those appearing under the influence of alcohol, is very questionable.

Actually the whole research project was of minimal interest and value.

20. CSFSJ. 11:1-14, March 1978. *Handwriting of the deaf and hard of hearing*. By G. A. Savage.

This is an excellent and well-done article. There is a good bibliography and several illustrations of handwritings. Terms are clearly defined and the prevalence of hearing loss is discussed. Extensive and careful effort went into obtaining the 57 samples used in this original research project.

To evaluate properly writings by the hearing impaired, one needs to understand the linguistic problems of the deaf. The author explains, for example, that sign language tends to omit functional words and use only root forms. This is reflected in the written texts of the deaf. There is detailed discussion of each part of speech and its use by the deaf.

In essay writing, deaf children, compared to hearing children, use shorter and simpler sentences, are behind in skill relative to age, lack both precision and shades of meaning, and prefer concrete to abstract expression, among other traits. The deaf are necessarily visually oriented.

See the later article in Item 21 for related information. This article is an excellent, scholarly discussion and is highly recommended.

21. CSFSJ. 14:179-84, Dec. 1981. *Problems in understanding written English of the hearing impaired*. By Paul Arnold.

He first surveys the findings of others and summarizes them. Some examples of proven linguistic traits:

- "Too strong emphasis on key words;"
- improper use of number (single for plural and vice versa);
- omission of auxiliary words;

- "substitution errors;"
- extra words added;
- a limited vocabulary;
- simple subject-verb-predicate syntax;
- incorrect tense.

Additionally, the hearing impaired may exhibit poor reading comprehension which is rooted in a lack of understanding of proper syntax. It starts in childhood, and thus the adult may avoid writing entirely.

The deaf are often good spellers, but often fail to grasp the subtleties of meaning, particularly between similar words. Misspellings are eye-oriented versus ear-oriented.

22. CSFSJ. 16:174-91, Dec. 1983. *Identifying characteristics in the handwriting of the visually impaired*. By Brian Lindblom.

He begins by discussing methods of teaching writing to persons blind prior to learning. Writing aids are also discussed and illustrated. Extensive handwriting samples are reproduced, consisting of signatures and the "Quick brown fox" text.

The section on conclusions begins: "Features found in the handwriting samples which may be considered as indicators...." Emphasis should be put on the word "may," because each feature can and does occur in some handwritings by sighted people. However, complete absence of these traits would be conclusive proof that the writer was sighted. Though present, absence of their dominance in the writing would support a reasonable probability that the writer was sighted.

These features are:

- a) Misalignment of words relative to the base line and each other;
- b) Overwriting of previously written text;
- c) "Pen scratches" at the start;
- d) "Long flattened connecting strokes;"
- e) Overlapping characters;
- f) Squared letter forms;
- g) Frequent pen-lifts;
- h) Missing diacriticals;
- I) Places where the ink failed;
- j) Inconsistent word and letter spacing;
- k) Short upper and lower zone extensions;
- l) Flattened bases of letters written on ruled aids;

m) Paper marred by writing aids;

n) Slow, cautious motor sequence, maybe with movement tremor. Movement tremor is that which results from carefully controlled and slow writing, thus from muscle tension.

The examiner must consider the degree and length of the sight impairment and when writing was learned. This article is exceptionally well-done and highly recommended.

23. CSFSJ. 19:103-39, June 1986. *Regression and/or attempted simulation of handwriting by hypnosis*. By A. Blueschke.

There is an extensive description of the procedure used with some discussion of the subjects' reactions and opinions afterwards. The bottom line is: Hypnosis is not an avenue to perfect, unidentifiable forgery. Mostly it causes writing skill to deteriorate. The article is well illustrated.

24. CSFSJ. 20:119-38, Dec. 1987. *Effect of medication on handwriting*. By C. Gilmour and J. Bradford.

Hospitalized schizophrenic patients were studied. Medication was either neuroleptic or antipsychotic drugs. Three qualities were examined.

1. "Line quality—a measure of the smoothness and continuity of the stroke."
2. Size, including spacing between words and lines.
3. Individual characteristics.

They described the third quality in a sentence giving seven habits and ending with the three periods indicating the cut off of a sentence of indeterminate length. Such amorphous methods of observation recur in some document examination literature.

An excellent idea was to exclude, as much as possible, patients with other disturbances, such as drug addiction. The records kept were careful and complete. Within the limits of what they observed, it is a valuable research project.

25. CSFSJ. 20:139-46, Dec. 1987. *Handwriting analysis of several extrapyramidal disorders*. By M. Doisseau, et al.

Parkinson's disease and three related disorders were considered. Two samples each from 35 patients were studied, one sample before taking medication and one an hour afterwards. Document examiners who did the analyses had no knowledge

of the diagnoses nor of the medications prescribed. The medications were L-DOPA or an anticholinergic. The writing was of a copied text.

No patterns specific to the individual diseases were discerned. However, other studies indicate patterns for general types of diseases and a very specific complex for Parkinsonism. Individuality of handwriting "was not altered by any of the drugs encountered." In fact, very scant changes were reported, which means either medication had been on-going or there was an arbitrary restriction on the graphic features to be observed and reported.

Sometimes handwriting can be improved under medication. DOPA could occasion significant horizontal expansion. A side effect of the anticholinergic was "memory errors" in handwriting. That is, the writer retouched letters to correct the forms and made spelling errors, having forgotten momentarily the correct way.

One suspects the paucity of the results comes from a paucity of skill in the observers and of their knowledge about what to observe in handwriting. The after medication illustrations show, for example, generally a more rhythmical motor sequence, less fragmentation and smoother curves. That would indicate that the medication definitely helps the patient.

26. CHILD: CARE, HEALTH AND DEVELOPMENT. 15:79-104, 151-66, 1989. *Childhood dysgraphia*. Part I: *An illustrated clinical classification*. Part II: *A study of hand function*. By A. E. O'Hare and J. K. Brown.

In Part I different types of dysgraphia are discussed and illustrated, mostly with handwriting. Remedial programs are discussed in general. One fine idea suggested is not to practice a child's disability. That is, if a child cannot write, writing is usually practiced repeatedly, practicing as it were the disability. Instead, the authors suggest working around the disability and finding another method by which the child can successfully communicate.

Part II gives data from a study of 66 children, of whom 26 had a specific dysgraphia. The focus is not specifically on handwriting but on their data generally and how it relates to that from other studies.

27. CRIMINAL LAW QUARTERLY (CANADA). 3:57-9, May 1960. *Alcohol and handwriting*. By Royston J. Packard.

It discusses the effect of actual drinking, comparing samples of writing before, early on and later on during drinking. Early on the writing tends to be larger,

heavier and more flourished. Later on, these are augmented and legibility suffers. The author observed subjects during one-hour laboratory drinking periods.

28. CURRENT THERAPEUTIC RESEARCH. 12:115-25, March 1970.

Parkinson's disease: L-dopa treatment and handwriting area. By Walter Knopp, et al.

The authors had used handwriting to monitor dosages of neuroleptics. Since these agents induced Parkinsonian traits into the handwriting which was previously characterized by psychotic traits, they thought of monitoring dosages of L-dopa with handwriting. The latter induces psychotic like traits in handwriting which had been previously characterized by Parkinsonian traits. I include this particular paper because on page 121 are reproduced two sample writings from two patients. One set is of before and after samples for neuroleptic medication and the other for L-dopa medication.

29. DEFENSE LAW JOURNAL. 10:104-5, 1961. *Expert testimony ... unusual and effective use of a handwriting expert in a personal injury case.*

An abstract of the next article.

30. DLJ. 10:121-6, 1961. ... *(A)droit use made of handwriting expert to establish tremors in plaintiff's handwriting prior to accident.*

Plaintiff contended that the accident caused his MS symptoms. Medical literature says that MS can show first in the handwriting. The expert demonstrated that tremor in writing was prior to the fall and showed lack of physical coordination before the accident. Defendant prevailed.

31. DISSOCIATION. 4:2-12, March 1991. *Handwriting variations in individuals with MPD.* By Jane Redfield Yank.

Subjects with multiple personality disorder provided handwriting samples in their various personality phases. The writings of each individual did not show such significant differences that they could not be identified as by that person. No illustrations are given since a promise not to publish samples was essential for confidence to participate in the study. The study was done as a master's thesis.

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32. EARLY HUMAN DEVELOPMENT. 40:23-7, Dec. 1994. *Twinning is associated with an increased risk of left-handedness and inverted writing hand posture.* By Stanley Coren.

33. FORENSIC SCIENCE. 3:129-34, April 1974. *Characteristics of automatic writing during a state of trance.* By A. K. Gajawani and N. V. Sukerkar.

Seven "normal subjects" wrote while in a hypnotic trance and then afterwards. Though the authors draw conclusions, such as writers use the same pen grip whether in a trance or not, the small number of subjects makes their findings either only indicative in themselves or supportive of other studies. Of unusual interest was that the writing was done with a split nib pen. In the trance writing, one nib was pressed more into the paper than the other, while in post-trance writings the nibs were evenly applied to the paper. Generally, writing in a trance was considerably more relaxed and less controlled, but it remained clearly identifiable provided one understands the characteristics of trance writings.

34. FS. 9:161-72, May-June 1977. *Influence of age and illness on handwriting identification problems.* By Ordway Hilton.

It is a very worthwhile article, richly illustrated with signatures before and after physical deterioration. Unfortunately the principal focus is on form. He does say: "It is important to understand that the decline in form and quality of execution are interrelated.... If only form is affected, then the examiner must look for some other reason, and the same would hold true for the quality of writing."

Two examples of what he calls quality reduction are false starts and uncontrolled impulses. At the end of the difficult signature the writer may become more fluent and fast. We might say that there was a release of effort and tension. Precision of corrections would be a suspicious sign when the alleged writer lacks control.

He observes that deteriorated writing often tends to vertical slant, just as beginners do, for the writer is learning how to write again. The aged and ill writer will have repetitions and omissions without corrections.

The signature writing of the old and ill have contrasts with forged signatures. It will be pictorially different from other genuine signatures; the forger efforts at pictorial similarity. Genuine signatures of the old or ill will be erratic in speed, pressure and directional trends. But the forger must control these to make the form

right. Also, the tremor of imitation is more uniform and controlled than genuine tremor.

One needs to study as complete a series of signatures as possible and in chronological order. Deterioration in skill is individual, uneven and may reverse at times.

35. FORENSIC SCIENCE INTERNATIONAL. 14:159-64, Nov.-Dec. 1979. *Effects of marijuana and alcohol usage on handwriting.* By Robert G. Foley.

It was a study of twelve individuals' handwriting. They imbibed alcohol, marijuana and a combination of the two. With moderate use of marijuana, the alcohol was the bigger culprit. The first two and a half pages are a good review of previous studies, which are identified by the 23 items in the bibliography.

I was not impressed with the research procedures and data control. They do not say whether or not the subjects started clean of intoxicants beforehand. They did not know the potency of the marijuana nor the alcohol blood level of the subjects.

What were the usage habits of the subjects? Abstainers, social drinkers, heavy drinkers, alcoholics? They do not seem to have studied handwriting pressure, which is critical to health estimates.

36. FSI. 17:153-6, March-April 1981. *Poisoned pen; a case report.* By Wallace Vanstratt.

The summary reads: "In a case of suicide by overdose of a sedative and hypnotic and a tranquilizer the author analyses the deterioration in writing in the time frame recorded by the victim." The victim wrote five times at five minute intervals.

37. FSI. 28:19-26, May 1985. *Handwriting of the alcoholic.* By Jan Beck.

The non-alcoholic has two writings relative to drink: Writing while sober and writing while intoxicated. The alcoholic has three writings: Writing while sober, writing while intoxicated and writing during the withdrawal period. These can be mistaken for three different persons' writings and/or forgeries. This article summarizes and illustrates the findings from four authors. Again, form is paramount and pressure neglected.

The alcoholic's handwriting during intoxication shows "enlargement, carelessness, illegibility and disintegration." That is, it is characterized by

excessive relaxation. However, during withdrawal, the handwriting is characterized by excessive tension; it is angular, involuntary, irregular, not fluent, tremulous and maybe of smaller size. Thus intoxicated and withdrawal writing both entail a loss of control, but we could go further than the author did and say that the withdrawal signs show unsuccessful effort at regaining control.

When the alcoholic becomes clean, writing returns to normal for that individual. The phenomena of alcoholics' writing improving with the first drinks is due to their still being in the withdrawal stage prior to drinking. I would expect permanent damage in the handwriting once the alcoholism causes permanent damage to the physical health.

38. FSI. 38:161-71, Sept. 1988. *Deciphering the handwriting of the recently blinded; a case study.* By Janet F. Masson.

If you are faced with the problem of determining the message a blind person wrote, this paper is of preeminent practicality. The author drew on methods of document examination employed in such circumstances as obliterated writing to decipher the message which the writers intended. The paper does not explore how to determine whether the writing is by a visually impaired person.

39. FSI. 46:55-61, May-June 1990. *Graphic test as a method for estimation of testator's psycho-physical condition.* By Mahek Legien.

On page 56 he says: "Suchenwirth, a prominent neurologist of handwriting, lists the most common 'pathological graphic phenomena' characteristic of the states of consciousness disturbance:

(1) disharmony of graphism, introducing extravagant, peculiar features, abnormality,

(2) lack of dynamism, lack of basic rhythm,

(3) inability to copy,

(4) retouching,

(5) handwriting disintegration,

(6) defects in construction."

The method of examination and proof is illustrated by three case histories. Among conclusions drawn are:

- "Graphic tests can be used for assessing the testator's psycho-physical state at the moment of making the testament."
- Handwriting is part of the comprehensive evidence.

- Courts have accepted the handwriting expert's opinion as a basis for their determination.

Please note that the author is an expert in Poland, so the last comment refers to courts in that country.

40. FORENSIC SCIENCE SOCIETY. JOURNAL. 23:161-2, April 1983. *Two different effects of brain cancer on writing*. By Mary I. Duncan and Beryl Gilbertson.

The effect which cancer in the right or left hemisphere of the brain has upon motor ability is briefly described. Changes in handwriting before and after advance of cancer in one writer are described. It is not about graphic signs of cancer.

41. FSSJ. 23:237-40, 1983. *Dependence of slope of handwriting upon sex and handedness of the writer*. By Richard N. Totty, et al.

Of its two possible meanings, in this case “slope” is the angle of letters relative to the baseline. Male writers tend to a more rightward slant than females, and right-handers more so than left-handers. In neither does the tendency amount to a statistically significant difference. Thus slant is not a reliable indicator of either sex or handedness.

42. FSSJ. 25:371-5, 1985. *Study of the form and extent of natural variation in genuine writings with age*. By T. S. Kapoor, et al.

It is interesting though not earth shaking. They discovered what was known: Handwriting characteristics do not tend to change radically, but gradually, and to have increased variation; thus samples contemporary with the questioned writing are the best exemplars. Subjects studied were 30 to 55 years of age, and their writings covered a ten year period, though the title might seem to imply writings by senior citizens. Observations focus on form, a fact which makes one wonder whether or not the examiners were unaware of other facets of handwriting and thus imperceptive in noting changes.

43. GERIATRICS. 30:115-8, Nov. 1975. *Reading and writing disorders caused by central nervous system defects*. By Kenneth M. Heilman.

On page 117 begins the brief discussion of problems “due to central nervous system defects.” On page 118 the author states: “Aphasia is almost always

associated with agraphia. Aphasia is a disturbance of language (not speech). Like speech, writing may reflect the underlying language disorder. In general, agraphic errors mirror errors in speech.”

44. HARVARD LAW REVIEW. 49:483-4, 1936. *Evidence. Opinion: Expert testimony; admissibility of handwriting expert's testimony as to writer's sanity.* {Gibbons v. Redmond, 49 P2 1035 (KS 1935)}

The review objects that the testimony of a graphologist was received. The case report gives no suggestion whatsoever that J. C. Shearman was other than a qualified examiner of questioned documents. He testified that “the omission of ‘Mc’ from the testator’s name indicated mental lapse at that point; and that the freedom and grandeur with which the signature was written indicated exhilaration—a grand and glorious feeling.” Independent testimony, of which the report indicates Shearman had no prior knowledge, confirmed his estimate. See Item 136.

45. HOSPITAL FOR JOINT DISEASES. BULLETIN. 19:1-19, 1958. *Observations on disturbances in neuromuscular coordination in patients with malignant disease.* By Alfred Kanfer and Daniel F. Casten.

Traits which appear in the writing with the onset and development of a malignancy are given and illustrated with microphotographs of writing from six different individuals. Tables summarize the accuracy of predictions of malignancy in handwriting from several studies. Handwriting is studied with 2 to 10 power magnification and with a wide field of vision. The first manifestation of malignancy in the handwriting comprises:

- a) Three to four times as much pressure on down than upstrokes.
- b) Sudden shift from heavy down to light upstroke versus former gradual change.

- c) Segmentation in individual strokes.
- d) Ovals become stiff, angular or straight lines.
- e) Increasing variations in size and separation of letters.

In later stages, the handwriting has these traits:

- a) Individual strokes show irregularity in ink distribution and width and serrated borders.

- b) Up and downstrokes are now “of equal density and width.”
- c) Extremely heavy pressure which at times is very light.

d) Letters are stiff, angular or shapeless. Ovals are angular, straight lines or “extremely wide circular forms.”

e) Marked variation in size and spacing of letters.

Please note that one ought not attempt diagnosing malignancy with the very brief and summary information the paper provides. However, awareness of these kinds of writing traits and skill in observing and reporting them will help the expert be more aware of possible avenues of inquiry.

46. IDENTIFICATION NEWS. 15:4-9, Jan. 1965. *Handwriting of the blind*. By Irby Todd.

He describes how the blind are taught to write. The sequence of strokes in the formation of some letters differs from the sequence sighted persons are taught. As in any handwriting examination, knowledge of the school model is of importance, sometimes even essential for a reliable opinion. Writing guides and tools are described. Distinctions between those who learned to write prior to loss of their sight and those who learned to write after already being blind are discussed. For the latter the examiner looks for combinations of writing skills which might reasonably require sight in order to discover forgery by a sighted person.

For those blinded after learning to write, he quotes Robert Saudek's *Experiments with Handwriting*, which I believe is the most important text in English for handwriting identification. Such writers maintain identifiable writing even long after blindness. What the paper does not mention is that such writing remains stable in its master patterns, since the writer does not have new visual images. On balance this is an excellent article with much practical information.

47. ID NEWS. 15:9-11, March 1965. *Competence [legal] and questioned documents*. By Joseph Tholl.

48. ID NEWS. 18:7-15, Nov. 1968. *Handwritings by the cerebral-palsied*. By Mary S. Beacom.

49. ID NEWS. 27:13, April 1977. *A case study examination of the handwriting of the chronically ill*. By Joseph A. Fanciulli.

It is a nice demonstration of how to combine medical information, knowledge of the effects illness has on handwriting, correct observation, and good logic.

50. ID NEWS. 30:11-3, May 1980. *A study of mental aptitude while writing under duress*. By Dewan K. S. Puri.

51. INTERNATIONAL CRIMINAL POLICE REVIEW. 131:226-36, Oct. 1959. *The graph test*. By Rene Resten.

It concerns a purported method for determining intoxication by handwriting examination. There are examiners who claim to be able to make such a determination and have even offered testimony on the question in court. Research papers listed in this annotated bibliography which have addressed the question indicate it is not possible with any degree of certainty beyond a gross estimate. I believe such claims are entirely without empirical validity and ought not be accepted by the courts, much less offered by the expert.

52. ICPR. 282:241-4, Nov. 1974. *Tremors; forged or genuine*. By Dewan K. S. Puri.

Seven illustrations show the various kinds of tremor discussed. It compares those from intoxication, old age and health (often called fine tremor) to tremors of forgery and nervousness (often called gross tremor or muscle tremor). This distinction is important in avoiding wrong estimates. Puri always writes quality papers. The illustrations in this paper could be used to educate the fact finder concerning the qualitative differences between fine and gross tremor.

53. ICPR. 408:9-20, Sept.-Oct. 1987. *Handwriting and exogenous intoxication*. By A. Buquet and M. Rudler.

This is a marvelous article. It is well, richly and clearly illustrated. Genuine tremor may be on the vertical axis of the writing (thus from side to side in the writing hand) or on the horizontal axis (and thus up and down in the writing hand). The tremors that arise from physical impairment, from tension within the writing act as when tracing carefully, and from attempt to imitate genuine tremor are all qualitatively different. One must study examples of tremor closely to develop skill at discerning the various kinds.

The authors clearly delineate the differing symptomatic effects different toxins have on the writing. Do obtain this paper. It is most authoritative, being authored by experts in both medicine and handwriting. I could not begin to summarize what is already a very compact writing offering the single best survey of the effects on handwriting by various illicit drugs, medications and similar toxins.

54. ICPR. 432:17-24, Sept.-Oct. 1991. *A clinical approach to graphometric examination for court purposes*. By Jacques Salce and Alain Buquet.

The authors maintain that graphometry offers both a supplement to traditional methods of determining mental pathology and a reliable tool when those methods cannot be employed for some reason. On page 18 they say: "Graphometry measures the different scriptural features and applies powerful methods of multivariable analysis to correlate them with behavioural interpretations, and place the writing on scales. It is an experimental method based entirely on mathematical procedures, and its results can be easily reproduced."

Of some disappointment, the illustrations of how some of the measurements are to be made are of entirely manufactured samples with what seems to me to be gross exaggerations. On page 18 they say that approximately 20 years of research supports the technique. Its measurements and interpretations are such that persons trained in it will give the same interpretation for the same writing. Unfortunately, one will not know how to apply any part of the technique from study of this paper. ICPR has published several papers on graphometry, and whether considered singly or collectively they do not impress me nearly as much as they impress their authors.

55. INTERNATIONAL JOURNAL OF FORENSIC DOCUMENT EXAMINERS. 1:75-7, Jan.-March 1995. *A new tremor in handwriting?* (Book review.) By Brain B. Carney.

The paper offers an excellent description of basic medical concepts regarding tremor. Essential tremor, primary writing tremor and others are defined. The book reviewed is recommended as a valuable reference for the handwriting expert. It is *Tremor*, by R. J. Elbe and W. C. Koller, Baltimore, MD, John Hopkins University Press, 1990. Having a copy myself, I heartily second the reviewer's evaluation.

56. IJFDE. 3:272-5, July-Sept. 1997. *The tooth forger*. By Robert G. Foley.

In a case report involving possible forgery versus auto-forgery of a quadriplegic's signature, the author sets forth the questions to be considered and the methods to follow. He advises obtaining a greater number of exemplars than usual. Though the victim had great variation in his signature, he showed "a remarkable, consistent quality in writing habits which can lead to identity." A full page of enlarged questioned, requested and collected signatures help the reader to follow the proof of forgery. This piece could serve as a model for case reports.

57. JAPANESE JOURNAL OF PSYCHIATRY AND NEUROLOGY. 44:404-6. *Epileptic patient demonstrating echographia during interictal states.* By Rumiko Kan, et al.

“Echographia” is the ability to write from either copy or dictation while not being able to write an original text, what handwriting experts would call a spontaneous writing. “Interictal stages” means times between convulsions.

The patient, a 17 year-old male, wrote between seizures and later after the seizures had been controlled. Copying from a tissue box, in his earlier sample “the characters were unclearly written, and copying mistakes and obscure words that could not be considered echographia were included.” In his later sample, the text copied from an English textbook “was clearly and carefully copied without copying mistakes or miswritten characters.”

58. JOURNAL OF ABNORMAL PSYCHOLOGY. 23:383-92, Oct. 1928. *Automatic writing by a blind subject.* By Sarah M. Ritter.

59. JOURNAL OF ADOLESCENT HEALTH CARE. 6:31-4, 1985. *Ten-year follow-up of adolescent dyslexics.* By Katerina Michelsson, et al.

26 dyslexics who had been tested as adolescents were retested in their 20's. A table on page 32 gives the writing errors noted in 1972-75 and 1981. These are:

- “Visual perception errors” which disappeared in 1981
- “Auditive perception errors” which significantly improved
- “Double/single consonant faults”
- “Reversions, additions of letters” and “Other faults”

Changes in occurrence of the last two were not significant. One of the writers had no writing errors when retested.

60. JOURNAL OF APPLIED BEHAVIOR ANALYSIS. 9:417-23, 1925. *Note on motor activity as conditioned by emotional states.* by H. H. Remmers and L. A. Thompson, Jr.

61. JOURNAL OF APPLIED BEHAVIOR ANALYSIS. 24:65-72, Spring, 1991. *Knowing when to say when: a simple assessment of alcohol impairment.* By E. Scott Geller, et al.

The study was done on student drinkers at a college fraternity party, which seems a reasonable place to find willing drinkers of alcohol. Other students

judged whether they could distinguish the pre and post-drinking writing samples. Blood alcohol was measured as each sample was taken. All judgements were better than 65% correct. Sentence writing was more easily distinguished than signature writing. The higher the blood alcohol rate, the more correct judgements there were.

The authors discuss the usefulness of a handwriting test for inebriation. They point out that such a test would be less intrusive and that the percentages of correct judgments were higher than for the one-leg balance test. On the other hand, they note that one would need a known sample prior to drinking for comparison purposes, which would be a difficult thing to achieve on a DUI stop. What they do not seem to mention is that the students evaluating the samples were doing so within the context that alcohol would be the only possible cause for the writing to change. Thus this text would give no comfort to anyone ill-advised enough to want to prove the fact of inebriation, much less the degree of it, from a handwriting examination. It seems to me that this study clearly gives support to the thesis reiterated several times in this monograph: In matters of health, the handwriting is not an independent proof, but it must be taken in the context of the other reliable and available evidence.

62. JOURNAL OF APPLIED PSYCHOLOGY. 10:151-61, June 1926. *Sex differences in handwriting*. By S. M. Newhall.

63. JOAP. 13:159-66, April 1929. *Sex differences in handwriting*. By M. E. Broom, et al.

64. JOAP. 15:486-98, Oct. 1931. *Sex differences in handwriting*. By Paul Thomas Young.

65. JOAP. 18:705-10, Oct. 1934. *More on sex differences in handwriting*. By H. Tenwolde.

66. JOURNAL OF CLINICAL PSYCHIATRY. 47:255-7, 1986. *Hypergraphic syndrome of automatic writing, affective disorder, and temporal lobe epilepsy in two patients*. By Anthony B. Joseph.

“Hypergraphia” seems to mean an excessive amount of the writing activity, of which we might say colloquially that the person is definitely overdoing it.

“Automatic” in reference to writing can be used to mean spontaneous writing, that is writing in which the person thinks about the message being communicated rather than the mechanics of the writing activity. However, in this and many contexts it means a writing which is not done voluntarily, with awareness and decision of the writer. In the two cases reported the writing was done while in or under the influence of an epileptic phase.

The first paragraph is a nice summary of some of the major clinical disorders of handwriting with references to works detailing them. Unfortunately, no writing samples are given. Of most summary interest to the handwriting expert is this paragraph from page 256: “Of interest, neither patient manifested the interictal hypergraphia of TLE, although the patient described in Case 2 had features of interictal personality syndrome. The presence of seizure disorders; the repetitive, stereotyped, and paroxysmal time course of the automatic writing, the nonvolitional quality of the episodes; and the lack of awareness of the content of the writing all support the concept that these episodes were ictal.”

“TLE” means temporal lobe epilepsy. “Paroxysmal” means related to a sharp spasm or seizure. The author lists factors which indicate an action to be automatic under the influence of an epileptic phase, and thus that the writing in question was automatic and ictal.

67. JOURNAL OF CLINICAL PSYCHOLOGY. 9:284-7, July 1953. *The effects of alcohol on handwriting.* By Albert Rabin and Harry Blair.

Forty adult males each consumed between 9 and 15 ounces of 100 proof whisky in four and a half hours. The same unfamiliar text was copied before and after the drinking session. Though one might expect better performance the second time, at page 286 the authors report: “The results, however, show a retardation, less fine motor coordination (using more space) and less accuracy in the well-habituated activity on the part of our subjects. The reduced accuracy also points in the direction of more serious involvement of the central nervous system and the so-called ‘higher mental processes.’” At page 287 they say: “No relationship between the incidence of graphological signs and degree of alcohol concentration in the blood was found.” They give what seems to be the obligatory, self-deprecating and ritualistic statement for all med/psych researchers, namely that further research is needed.

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68. JOURNAL OF CONSULTING PSYCHOLOGY. 15:243-8, 1951. *Relation of writing speed to age and the senile psychoses*. By James E. Birren and Jack Botwinick.

The authors explain, on page 243, why handwriting offered an excellent way to study “slowness of speed response” in the elderly: “Tests of writing speed appeared to be potentially useful in the psychological evaluation of the elderly and offered several desirable features: (a) the material is simple and familiar, (b) the responses required (writing) are highly overlearned, (c) no special apparatus is required, and (d) the test series may be easily lengthened to secure any degree of reliability desired.”

554 subjects aged 16 to 89 were asked to write quickly, but legibly and in their usual style, random numbers and words arranged in columns. In addition to these, “a total of 35 patients diagnosed as senile psychosis or psychosis with cerebral arteriosclerosis was studied.” These patients “were all in the age range of 60-70 inclusive and met the same criteria as the general population, i.e., they were white, their native language was English, and they had a minimum of four years of schooling.” Much other detail of the test procedure and the population studied is given, including how they estimated the reliability of the number writing portion.

On page 245 they state: “Speed of writing both digits and words was significantly slower in the older age groups (Table 2), and there was a further reduction in writing speed in the patients with senile psychoses (Table 3).” The tables show digits per second and words per second written by age groups in Table 2 and comparing the 35 patients to the others in Table 3. Other comparative details are given in the text. On page 247 the “Discussion” segment opens with: “The age difference in speed of writing are large when compared with changes in other psychological and psychophysiological functions.” Two important caveats are inferred by this. First, handwriting experts who tend to equate every slow writing with some kind of forgery are entertaining an indefensible tendency. Second, we must be very cautious in equating slowed writing speed with something other than a physical impairment to a specific psychophysical skill. As stated more than once in this monograph: Any graphic indicator is a reliable indicator only in company with a complex of similar graphic indicators, and in some circumstances, particularly relative to health considerations, handwriting in and of itself is not proof but serves to confirm or support other evidence. It is always enough to put an intelligent and conscientious expert on alert as to reasonably possible directions an inquiry ought to take.

69. JOURNAL OF CRIMINAL LAW, CRIMINOLOGY AND POLICE SCIENCE. 2:431-2, Sept. 1911. *Dark lines in handwriting and allied phenomena.*

This concerns emotional expression in handwriting and is not too enlightening.

70. JCLCPS. 7:284-7, July 1916. *Handwriting from a psychopathic viewpoint.*
By Webster A. Melcher.

This is a succinct and well done paper. He says: "Handwriting is the visible joint product of four human attributes:

- A. Knowledge of the subject matter....
- B. Volition concerning the subject matter....
- C. Memory of other efforts....

D. Action to the desired end. This is the most important factor...obtained through the medium of the motive senses...imperfectly classified as Muscular, Mental and Nervous."

Under muscular, mental and nervous, he lists the features which can indicate the psychopathic. He ends by briefly describing the method of enquiry to be followed and the need for caution in conclusions.

71. JCLCPS. 11:209-16, 1920. *Dual-personality in handwriting.* By Webster A. Melcher.

This paper is more editorial than forensic, yet it has some good points for handwriting examination. One would have liked to see illustrations for this and the previous citation. His main points can be summarized thus:

1. The examiner must not be content with observing "mere physical and pictorial details" but should search out the fine points which are symptomatic.
2. Writing made in one state of the dual-personality would be radically different from that made in another.
3. Each set of writings in each personality state would appear to be naturally executed.
4. Only a careful, thorough examination utilizing all resources of the science of handwriting would make the right determination.

Regarding the first point he gives, one could add that, of course, it would help much to have learned such indicia through assiduous study and investigation of the pertinent literature. Regarding the second point, research such as that by Jane Yank indicates that the changes peculiar to different personality phases are not significant for identification. See Item 31.

72. JCLCPS. 34:338-43, Jan.-Feb. 1944. *Handwriting and forgery under hypnosis*. By George J. Lacy.

Two issues were addressed. First, would a hypnotic state improve ability to simulate a signature? Second, how would age regression under hypnosis affect the writing?

The summary findings for the first question are given on page 341: "The ability to imitate a signature either in the waking state or in the trance was found to be greater in some subjects than in others. This, of course, is to be expected.

"A study and comparison of the attempt at simulation in the waking state and in the trance does not indicate that subjects have any more ability to simulate a signature while in a hypnotic trance than in the waking state. There is no definite evidence of better muscular coordination so far as handwriting is concerned while in a hypnotic trance than otherwise. Neither is there evidence pointing to any better ability to observe inconspicuous characteristics and peculiarities in a signature.

"Out of all of the numerous signatures written by various subjects, both in the trance and in the normal state, there is not one that does not have the inherent qualities of a forged signature."

As to the second question, except for one writer it is said on page 342: "These specimens of writing indicated that the writer merely wrote as he surmised that he wrote at these different ages. This was verified in some cases by the comparison of the exemplars with genuine writing of the suggested age." The subject who was the exception to the rule did such things as spelling his name as he had changed it at a specific age and wrote with increased tremor as he was "advanced" in age by hypnotic suggestion.

73. JCLCPS. 39:652-3, Jan.-Feb. 1949. *New light on contested wills*. By Wladimir Eliasberg.

The author reports about his own work in the third person. I wonder about anyone who is moved to speak of himself that way, particularly if admiringly. The usefulness of the article is to show that courts have accepted handwriting expert testimony as to signatures and writing influenced by illness and other factors. This summarizes his complete article titled "Graphology and medicine," in *Journal of Nervous and Mental Diseases*, 100:381-401. See Item 98.

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74. JCLCPS. 56:372-4, Sept. 1965. *Effects of intoxication on handwriting*. By K. S. Puri.

He begins: "Many times in Indian courts (and perhaps in other countries also) it is claimed that a particular document was not signed by the alleged person or if the signature was obtained, the person has no knowledge of it because of intoxication." Any defense in a desperate situation! The Indian document examiner is then called on to determine whether the writing is by one who was intoxicated.

There is only one illustration, but he packs in a lot of useful information. The writer loses control, coordination, accuracy and delicacy of touch. Every aspect of the writing reflects these losses. I recommend this article as a good summary of the subject and as one of the few writers who goes far beyond form.

75. JCLCPS. 56:528-39, Dec. 1965. *Behavior factors in handwriting identification*. By A. Naftali.

At page 536 the authors says: "[T]he examiner of Q.D. might be in a better position to evaluate the bits of information at his disposal, if he has some idea about the direction of *changes to be expected* from two given writing-situations." [Emphasis in original.] The author does not propose telling how to determine a particular behavior factor merely by studying the handwriting. He does explain various factors and how they can affect the writing. Thus the expert is armed with the intelligent tools needed to know what potential factor could be supported by the writing evidence and to know how to assess the theories of the parties to the dispute as to how the writing came about. I recommend this paper is a perennial masterpiece in the field and, unfortunately, a one of its kind as to its thoroughness and its imminently good sense.

76. JOURNAL OF EXPERIMENTAL PSYCHOLOGY: GENERAL. 107:119-44, June 1978. *Variations in cerebral organization as a function of handedness, hand posture in writing and sex*. By Jerre Levy and Marylou Reid.

Levy initiated inquiry into handedness and the hand posture during writing as they related to cerebral lateralization. This paper reports a further research study and summarizes studies up to that time. It is an excellent introduction to the topic. Subsequently, many papers have been published on the subject. Although the handwriting expert would not act as a research psychologist in handedness and hand posture during writing, the expert should have some acquaintance with the

intimate relationship between cerebral organization and handwriting. It may well offer us yet another avenue of scientific validation for our expertise.

In the summary introduction, the authors give a simplified statement of the theory as supported by the study they report: "Among both dextral and sinistral subjects with a normal writing posture, language and spatial functions were specialized to the contralateral and ipsilateral hemispheres, respectively, and lateral differentiation of the brain was strong. The reverse was seen in subjects having an inverted writing posture. In all groups, females were less laterally differentiated than males. In 70 out of 73 subjects, the direction of cerebral lateralization was accurately predicted by handedness and hand posture. The 3 subjects (2 females and 1 male) who failed to manifest the predicted relations were all left-handers having an inverted hand posture. In this group, lateral differentiation was so weak that the reliability of the tachistoscopic tests was reduced, and we attribute these three predictive failures to this cause. Thus, almost all of the variation in the lateral organization of the brain was accounted for by handedness, hand posture, and sex."

On page 122 is a drawing showing the postulated relationships between brain lateralization and hand posture during writing. The paper is well worth thorough study for anyone interested in this aspect of handwriting and psychology. It demonstrates how intimately intertwined a person's psychological organization and handwriting can be. However, do note that the suggested inference of brain organization from handwriting is from the handedness and hand posture observed during the very act of writing, not from observations of the completed product taken by itself. "Psychology of handwriting" taken to mean the psychological factors which impinge on the very act of writing while writing is an entirely different inquiry from "psychology of handwriting" taken to mean inference of psychological traits from an analysis of the finished product of handwriting examined apart from the writer and the act of writing.

77. JOURNAL OF FORENSIC DOCUMENT EXAMINATION. 1:75-83, Fall 1987. *Preliminary findings: The effect of alcohol on handwriting.* By Bonnie L. Schwid.

In a well controlled pilot study which aimed at a fuller study later, subjects' writing while sober and with .10 blood alcohol were compared. Seven writing traits were observed:

- Fluency. This trait seemed inconclusive due to the circumstances and limitations of the study.
- Baseline direction. The expected dramatic downward trend did not materialize. The author said maybe due to the fact that writings were made standing up. That surely can affect slant as well as baseline, if not all traits.
- Pressure. She said pressure rating was highly subjective and thus of limited value.
- Height of the lower case letters. It increased as expected.
- Overall height. This also increased.
- Width. Measured as the length of an entire line of writing, this also increased. With the three size measurements, an increase in size on both the horizontal and vertical plane took place. How proportionate the increase was does not seem to be noted.
- Legibility. She said this rating was highly subjective. Illegible writing became even more illegible. Subjects tried harder to make the writing legible as blood alcohol increased.

This is a good paper to study if one intends to perform such research because the author is remarkably and commendably candid in assessment of her pilot project. A wise researcher will learn from all predecessors in the same area of research.

78. JFDE. 5:35-54, Fall 1992. *Handwriting and signatures of the visually impaired*. By Paul Tull.

The author reviews the literature, including four of the studies cited in this bibliography. The focus is on the person blinded after having learned to write. The features characterizing such writing are summarized, which makes this paper an excellent reference. Then are given the data from the author's original research. Percentages of the sixteen subjects showing a particular trait associated with writing by the blind are given. To top off a well done paper, it is generously illustrated. One might want to refer to this paper as a basic checklist of things to look for.

79. JFDE. 5:55-63, Fall 1992. *A study of dating multiple sclerosis onset by handwriting*. By Ann Hooten.

This is a case study of one subject's writing from 1938 to 1980. The author summarizes significant changes as:

- "1. Flattening and angularity of loops and/or circles.
2. Drooping of terminal strokes.
3. Displaced pressure.
4. Lack of rhythm.
5. Crowding of letters.
6. Pen lifts.
7. Loss of motor skills."

It is not inferred at all that these traits are specific to MS, but that they demonstrate loss of muscular control and that they increased over a period of many years.

80. JFDE. 10:1-40, Fall 1997. *Parkinson's disease and graphic disturbances*. By Vickie L. Willard.

The author provides excellent illustrations, a glossary and an extended bibliography. Figures 7 through 26 follow the same patient from pre-Parkinson's diagnosis, November 1973, to the last thing she could write, December 1996. Rather than describe specific graphic traits of Parkinsonism, the author writes a paper which will be far more valuable to those who face the illness in themselves or their loved ones. She surveys medication and treatment and, on page 20, gives 8 guidelines for surmounting the difficulties in writing. Thus the paper is of value to the expert examining Parkinsonian writing and to the person confronted with it as a practical part of life.

81. JOURNAL OF FORENSIC SCIENCES. 6:76-87, Jan. 1961. *Drugs and questioned document problems*. By Harold J. E. Gessell.

Fairly useful, the article is seemingly not the result of controlled research nor are bibliographic references given. He misses pressure entirely in his list of things to study in the writing. Typical of his statements is: "Therefore, in view of the above it appears that there is a definite correlation between drugs and questioned document problems." That is an indefinite definite for you! There are five sets of illustrations.

82. JFS. 7:131-9, Jan. 1962. *Handwriting and the mentally ill*. By Ordway Hilton.

Two issues are distinguished: identification of handwriting by a person allegedly mentally ill and determination of mental illness from handwriting. For

the first issue the author does not give anything of particular usefulness, though every competent handwriting expert would want to read anything Hilton wrote. For the second issue, the author equates it solely with graphology and grapho-analysis. At page 136 he candidly admits: "A study of handwriting of mental patients may well reveal writing qualities that are consistent with other personality abnormalities. Just how close this relationship is, is not know to this writer."

Surely if he had been aware of what Osborn had to say on the topic in *Questioned Documents*, namely that there were graphic indicators of mental or emotional disturbance and that courts of law had received expert testimony on the subject, he would have included that in his paper. And if he had known of the vast amounts of materials in the med/psych literature on the topic, that also would have been included so that he would not have made the mistake of equating it solely with graphology.

Considering that Hilton was one of the most prolific, authoritative and respected authors in questioned documents, this lack of knowledge confessed to in the quote given should make us all most circumspect in voicing our own opinions on topics we have not yet sufficiently researched. My personal dept and respect for the man is expressed in the fact that I dedicate this opus parvum to him who produced many an opus magnum.

83. JFS. 10:335-46, July 1965. *Effects of drugs on handwriting*. By David J. Purtell.

This author is one of the finest in the field. This piece is so wide ranging and packed with information that I could not summarize it except by virtually rewriting it. He gives you many things to consider in evaluating handwriting affected by drugs, including alcohol. I highly recommend this article as a guide to practice.

84. JFS. 12:37-59, Jan. 1967. *Handwriting by the blind*. By Mary S. Beacom.

Fascinating and important, the article illustrates 22 clues that might show the writing was by a visually impaired person. The contention is not that the clues are conclusive proof. Some of these clues are print, especially capitals, poor alignment, problems with certain letters requiring complex or dual movements and evidence of mechanical guides and aids. She distinguishes clues as applying to those who lost vision and those who never had it.

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85. JFS. 14:157-66, April 1969. *Consideration of the writer's health in identifying signatures and detecting forgery.* By Ordway Hilton.

Like many document examiners unschooled in graphology, he does not seem able to identify clues for special circumstances while being too stuck on form. However, I must say he is a prolific author and most of his writings are useful and very informative.

In this paper he touches on many subjects, but none are treated sufficiently. He skates closely to penetrating the full spectrum of handwriting traits, as when he says: "Writing quality results from how the writing instrument is moved across the paper and is the key which unlocks the door to the solution of most signature problems."

You will hardly ever see such authors as Saudek and Roman in bibliographies of most document examiners. If you do, they are the rare ones with a sound foundation in handwriting science, such as Naftali or Sulner.

Writing identification is made by a combination of characteristic similarities within an individual's range of variations. "Signatures are usually the most automatic and the most resistant to change of all writings...."

Concerning medication he says: "Document examiners are seldom medically trained. They make no attempt in their study of handwriting to diagnose the cause of writing degeneration." Aristotle defined science in part as knowledge of things through their causes; for, if we cannot explain why and how things came to be as they are, we do not understand no matter our technical proficiency nor how many facts, however well organized, we know.

A complete student of the phenomena of handwriting would seek to know why and how the writing is as it is, from mechanical, physical, psychological and psychosomatic causes. That is why a good graphologist has the makings of the best handwriting expert. Unfortunately the inadequate ones are an embarrassment.

86. JFS. 14:309-16, July 1969. *Study of the influence of alcohol on handwriting.* By Ordway Hilton.

This reports a study of twenty individuals' writings before and during drinking. The drinking habits are not reported. Amount of alcohol consumed was not monitored, but blood alcohol was measured after each one hour period when the next writing sample was made.

But were the subjects free of alcohol and other chemicals to start with? Such considerations indicate this study was a long way from the admirable controls in

that reported by Huntington Hartford in his *You are what you write*, New York, Macmillan Co., 1973.

Generally the findings confirm what other such studies show. See Item 74, for a pithy and inclusive summary.

Hilton observes that handwriting, though affected by intoxication, cannot measure intoxication. The changes in handwriting from drink are very individualistic. He says: "(E)xtended specimens thus revealed deterioration more readily than a signature alone." This is in keeping with what graphologists know: Longer writings reveal more and more traits, particularly subtle ones.

He claims that "speed is maintained at a comparable rate" between the various samples during drinking. However, erratic speed can be detected in the illustrations. One important point made is: "No evidence was found in the writing comparable to the typical weakness of forgery." Unfortunately, due to the poor controls and structure of the test, the results have to be considered somewhat anecdotal.

87. JFS. 21:201-7, Jan. 1976. *Some aspects of normal behavior; their use in understanding problems encountered by document examiners*. By J. F. McCarthy.

This is an interesting essay as it struggles with the dilemma one creates when one equates all consideration of psychology and handwriting with graphology defined as analysis of character or personality from handwriting. The author partakes in the dominant belief among document examiners that graphology is some kind of unrealistic stupidity, if not an inherent evil. He also desperately feels the need for a psychology of handwriting as a sine qua non of a viable and reliable theory of forensic handwriting identification. Presumably from both his experience and his studies, he is aware of several psychological factors influencing the handwriting and, therefore, of vital and necessary interest to the expert. I found his discussion of these factors most stimulating and helpful. Yet, mainstream document examiners (a term I use for those who are, or initially were, government trained and employed experts) never resolve the dilemma of needing to account for psychological factors in handwriting while avoiding unwittingly becoming graphologists. The answer is really quite simple.

As the many med-psych papers cited herein, and the vastly more on topic which are not cited herein, show, one can have neither notion nor intent of practicing graphology and still research and employ theories regarding psychological factors and handwriting. A series of very fundamental and simple

distinctions will enable all handwriting experts to share in a psychology of handwriting, all the while keeping character handwriting analysis out of forensic handwriting identification. If one perceives graphology as a ravenous wolf at the fiscal door of questioned documents, then it will be a way to keep it at bay. The distinctions to be made are:

- Psychological characteristics of the writer which directly influence the making of the writing; for example, the person's aesthetic preferences for a particular style of letters.
- Psychological circumstances operating at the moment of writing and directly influencing the making of the writing; for example, a person signing a document while threatened with grave bodily harm if it is not signed.
- The determination of what, if any, specific writing traits can be attributed to the above two kinds of influences.
- The ability of experts to observe those specific writing traits and infer the psychological factors of which they might be the direct effects.
- The ability of experts, even though they may not be able to do the above, to say whether the observed graphic traits are in harmony with a theory of specific psychological influences directly affecting the writing during the time of its making.
- Whether psychological characteristics which do not directly influence the making of the writing can still affect the graphic traits.
- If such characteristics do influence the writing traits, whether such writing traits can be accurately observed and reported.
- Finally, if such writing traits can be accurately observed and reported, whether the psychological characteristics associated with them can be reliably inferred.

Only the last three questions relate to character handwriting analysis properly so-called. All the others relate to handwriting in its identifying characteristics and in its actual performance as a vital act of the organism in its psycho-somatic nature. One can thus investigate the psychology of handwriting as a graphic activity and steer well clear of character handwriting analysis. One can even entertain all the research on the direct psychological factors in the making of handwriting and the influences they may have on graphic traits, and one can still reject any inference back from those graphic traits to their psychological causes, even resist the evaluation of them in light of assertions by parties as to how the writing was made. Thus the most hide-bound mentality, who is most resistant to

psychology in any analytical form whatsoever, can safely have a psychology of handwriting as an operating cause during the writing activity. Indeed, unless one has such a psychology, one cannot identify handwriting, since, among other factors, graphic habit is essential to any identification theory. Habit necessarily has psychological aspects.

88. JFS. 29:87-91, Jan. 1984. *Alzheimer's disease and its effect on handwriting*. By James E. Behrendt.

An important research question that could have been addressed, but was not, is: Are there patterns of traits specific to the disease, and, if so, what are they?

Two illustrations are given. The first showing a 55 year old victim whose writing appears to be senile. The second shows three signatures over a nine year period with a precipitous decline within the last half year.

"As the disease progresses all patients eventually lose the ability to write.... Just before complete loss of writing ability an Alzheimer's patient will reach a condition where he or she will be unable to write or sign their name on command. If the name is placed before the patient, however, the patient will proceed to write."

One document examination problem is that patients might adopt the style of the model someone else wrote for them to refer to. Mental decline can precede physical decline. Another problem is that medications can induce Parkinson-like symptoms. Exemplars taken under medication are thus poor comparisons for questioned signatures made without medication. The examiner must ascertain the medications prescribed and dosages and times taken.

He ends: "Each case must be treated on an individual basis while keeping uppermost in mind the many influences Alzheimer's disease can have on the writing of an individual." Unfortunately he never really categorizes them, much less treats them in an orderly fashion. Yet this is a useful article.

89. JFS. 29:816-9, July 1984. *Anonymous letter writer. A psychological profile?* By Maureen A. Casey-Owens.

It is a report on cases wherein a psychologist or psychiatrist made a psychological profile of the writer of anonymous threatening letters from an analysis of the contents of the letter. To the extent that the handwriting expert looks to content analysis as a subsidiary source of information, a thing Albert S.

Osborn and other authors recommend as routine in anonymous note cases, the report is applicable and thus included.

90. JFS. 30:167-71, Jan. 1985. *Brain function and writing with the unaccustomed left hand*. By Greg A. Dawson.

20 right-handed subjects were asked to print the alphabet with the right and then the left hand. The object of the study was to determine indicators of opposite hand writing and suggest a neurophysiological theory to explain differences observed. The observations of changes really come down to two factors: methods of coping with a significantly reduced skill (such as writing larger in the way beginners do and short cuts with the unskilled hand, such as reducing ovals to angular forms), and counter strokes (such as reversing “s”, the t-bar and other letters and strokes). However, the paper reports instances of these things as separate factors.

What would be interesting and an application of Jerre Levy’s theories (see Items 76 and 123) to handwriting identification would be to test subjects using not only both hands but both inverted and non-inverted pen grips with both hands. When I talk to colleagues about opposite hand writing, I have them stand and do a little exercise. They first are asked to make a gesture with one hand and then make the same gesture with the other. Whether the right or left hand goes first, the other hand makes a mirror image gesture. Thus when a person writes with the opposite hand and makes counter strokes (a mirror image stroke), I believe that the person is making the most convenient and normal graphic gesture. Therefore, it would seem to require some psychological stress to learn to use the opposite hand in other than mirror image gestures.

91. JFS. 31:580-8, April 1986. *Alcohol and its effect on handwriting*. By Nanette G. Galbraith.

The handwriting of 35 men and women was examined before and after drinking. Breath tests were used to measure 0.0 blood alcohol at the start and levels thereafter. An excellent idea was that samples the subjects were to write duplicated customary writing forms, such as a check. Peace officers administered standard field sobriety tests.

Observations are charted for 24 participants. Traits observed and number of writers showing them were:

- Less legibility: 4

- Alignment dipping: 8
- Errors, correction, omissions: 14
- Less accurately formed letters: 5
- Relaxed, careless line quality: 15
- Enlarged, spread out: 15
- Spread varied: 6 (none of whom were rated “enlarged, spread out”)

The illustrations show writings on graph paper. The caption of Figure 2 reads: “The handwriting of another writer with a blood alcohol concentration of 0.12 had few or no significant changes (right).” The left sample was before drinking and the right sample afterwards. Since a magnifying glass clearly shows more irregularity in baseline alignment and size ratio proportions, one must credit the purported “few or no significant changes” to the assistance the writer had from the graph’s vertical and horizontal lines, enabling the writer to keep the pen “steady as she goes,” to use a nautical term. Thus one must consider the reported changes due to alcohol as being conservative at best and not reliable on the whole.

They did give explicit support to the rule that handwriting could not be used to measure blood alcohol level.

92. JFS. 32:1118-24, July 1987. *Triazolam, handwriting and amnestic states. Two cases.* By Deborah E. Boatwright.

The author is a member of AHAF and author of *A handwriting bibliography*, San Francisco, Neurographology Associates, 1986. The problem is that the subject does not remember events for a period *after* taking the drug. Overall the author suggests the problems facing the document examiner while remaining cautious in drawing conclusions from a study of two cases.

Two illustrations are given. Of the first she says: "No significant differences could be found between the two samples"; that is, the sample while the drug was in the blood and the sample two days later. However, from the reproduction, the drug sample has overextended upper zone, horizontal expansion, wider mid zone and upper loops, tendency to thread, longer t-bars, and the use of unnecessary dashes. In the second sample, that done under influence of the drug and alcohol, a stick PPI is replaced with what appears to be a counter-stroke Palmer I. Did the person readopt previous handwriting habits?

If you are faced with a writing that might be done while sleeping pills were used, I recommend you consult this article. She also gives some pharmacological information.

93. JFS. 36:470-9, March 1991. *Document examinations of handwriting with a straight edge or a writing guide.* By Marvin Morgan and Pam Zilly.

The paper compares the writing of the functionally blind who use writing guides to a sighted person who uses a straightedge. The blind person uses the guide as a matter of necessity in aligning parts of the writing, such as on a check. The sighted person does so for aesthetic preference. The sighted writer shows more neatness and precision of placement, thus permitting the distinguishing of the two types of writers.

94. JFS. 37:1621-32, Nov. 1992. *Linguistic evidence indicative of authorship by a member of the deaf community.* By L. Keith Kerr and Linda R Taylor.

The authors explain how American Sign Language differs in its syntax and vocabulary from standard spoken English. These traits flow over into the written language of the hearing impaired, although one can certainly learn to master standard written English. The paper is well illustrated, giving the handwritten matter and the transcription of the handwritten text in some cases.

95. JOURNAL OF HYPNOTHERAPY. 8:7-9, 1988. *Handwriting changes and hypnosis.* By Michael M. Zanoni.

96. JOURNAL OF INTERNATIONAL MEDICAL RESEARCH. 11:370-7, June-July 1978. *Assessment and remediation of handwriting deficits for children with learning disabilities.* By Maxine Towle.

97. JOURNAL OF LEARNING DISABILITIES. 12:450-5, August-Sept. 1979. *Handwriting deficits in children with minimal brain dysfunction: Effects of methylphenidate (Ritalin) and placebo.* By Robert U. Lerer, et al.

Of 50 afflicted children, a random selection put half in the test group with Ritalin and half in the control group with a placebo. All or the great majority had the following handwriting deficits, each of which was significantly relieved with Ritalin but not with the placebo (replacing some of their terms with terms of art):

- Poor spatial organization of material
- Poor legibility
- Inconsistent letter size and shape
- Poor word spacing
- Poor base line alignment

- Frequent erasures and rewriting
- Frequent letter and word omissions
- Poor rhythm and fluency
- Slow peed
- Letter reversals or inversions

Two series of three writing samples each are given, but they are so reduced that it is mostly faith in the caption which assures one they illustrate the findings of the study.

98. JOURNAL OF NERVOUS AND MENTAL DISEASES. 100:381-401, 1944. *Graphology and medicine*. By Wladimir Eliasberg.

The author is identified with both an M.D. and a Ph.D. He discusses character analysis of handwriting, but his major focus is to explain graphic disorders and their value for purposes of identification. It can serve as an introduction to European theory in general and specifically to the work of several serious researchers such as Rudolph Pophal. Today one would use the term “graphonomics” for the author’s major focus. The richness of bibliographic citations in different languages indicates the man’s scholarship. Many of his statements are supported by later papers in English language journals. For the reader limited to English, the citations indicate how limiting that limitation can be. A reader who has never been exposed to a serious graphological author can benefit with a new perspective on what graphic traits can be observed in handwriting, while maintaining any scepticism about any characterological interpretation.

99. JOURNAL OF POLICE SCIENCE AND ADMINISTRATION. 3:394-9, Dec. 1975. *Effects of artificial aids and prosthesis on signatures*. By James H. Kelly.

In his summary he says: "Signatures written with artificial aids and prostheses are basically similar to normally written signatures. The features found in signatures written with these devices are readily distinguished from those features associated with forgery. While such signatures can present unusual problems, a thorough examination, complete evaluation and proper interpretation will render correct conclusions."

There are four illustrations showing before and after signatures of four persons.

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100. JPSA. 8:455-9, Dec. 1980. *Handwriting systems for the handicapped*. By David J. Purtell.

This illustrates school models for trainable retarded children, giving the history of the development of these models and discussion of issues in teaching writing to the handicapped. The last method described is to teach writing in all roman capital letters. "By using only the 26 capital letters in block style printing, the learning load was reduced and the letters were found to be transferable to other subjects. For example, most of the words these children are taught are safety words that are always printed in capital letters...."

101. JPSA. 15:51-55, March 1987. *Forensic examination of arthritic impaired writings*. By Larry S. Miller.

This is an excellent article for a general overview of forensic handwriting examination. Forty-two subjects were studied. Twelve indicia were studied in the writing, including pressure, which is very rare in such research by forensic handwriting experts.

Arthritic writing was found generally to be labored, larger but wider relative to height, with many pen lifts, heavier pressure, tendency to left slant, ovals egg-shaped and maybe in two strokes, and with retouching. Less notable were problems with loops, strokes more squared and broken, varying base line particularly downward, imprecise aim, problems in beginning and end strokes.

No distinction was made between characteristics which were directly related to the disease and those resulting from efforts at compensating for the physical impairment. He noted predominance of counter-clockwise strokes. Graphologists have determined that garland strokes, which curve counter-clockwise, are the physically easiest to make of all strokes. He says characteristics of arthritic writing are the same as those in forged writing. However, other writers have noted they are qualitatively different though pictorially similar.

Practical advise given is to find out all you can "about the physical and mental condition of the writer," obtain exemplars written during arthritic episodes and do not base an "opinion on one or two significantly dissimilar characteristics...." And be cautious!

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102. LOGOS. BULLETIN OF THE NATIONAL HOSPITAL FOR SPEECH DISORDERS, NEW YORK. 2:29-39, April 1959. *Handwriting and speech; a study of the diagnostic value of graphic indices for the exploration of speech disorders.* By Klara Roman.

Three speech disorders are discussed and richly illustrated: stuttering, cluttering (dropping of parts of words due to haste or nervousness) and dyslalia (difficulty in articulation due to physical malformation or a hearing problem). Generally the handwriting will reflect difficulty where it reflects the words and sounds in which the speech disorder manifests itself. Figure 1 on page 497 illustrates the five writing difficulties of the stutterer:

- “Recurrent iteration of words,” which is writing the same word twice
- Compulsive retracing
- Patching of breaks
- Random dots
- “Hemming and drawling”

Hemming is hesitation in speech by uttering sounds like “hem.” Drawling is unduly prolonging vowel sounds, as in “steeeeeer carefully.” The two are reflected in handwriting by hesitations in beginning strokes and in unduly prolonged strokes. These five features add up to difficulty in beginning, maintaining unity in and completing the sequence of the graphic motor movements.

On page 507 she concludes with this summary: “There is a most significant correlation between certain disorders of speech and writing, which is especially obvious in cases of stuttering and cluttering. It is shown that such disturbances of speech are reflected in the patient's handwriting by equivalent graphomotor disturbances. Hence, handwriting analysis can be of considerable value to aid the differential diagnosis and to clarify the prognosis of improvement; it also may assist in the choice of appropriate remedial therapy.” The words “can” and “aid” caution one against both making diagnoses from handwriting and drawing inferences outside of the entire diagnostic context. For handwriting experts, this paper clearly shows that some traits very similar to the so-called indicia of forgery are in no way connected with a false writing. Any indicia related by research or experience to any specific cause is also related to one or more other potential causes and has similarities to other graphic phenomena. In this area of investigation, no set of handwriting indicia of any kind are in and of themselves dispositive of the matter.

103. MOUNT SINAI JOURNAL OF MEDICINE. 41:200-4, Jan.-Feb. 1974. *The value of handwriting in the neurologic examination*. By Richard A. Pearl.

A procedure was established and carefully followed. In order, the patient was asked to write samples, first spontaneously, second by dictation and then by copying a sentence. The method of analyzing the writing is described on page 200: "As there is no standardized method for the evaluation of handwriting specimens, the following approach was used. The specimen was first evaluated as to how completely the patient performed the tasks required. That is, did he write on command to dictation, and did he attempt to copy?

"The form of the specimen was then evaluated. This included how well the patient utilized the page, whether he wrote in a straight line, and how well he spaced his words. The morphology of the letters was then evaluated. The language content of the specimen is then studied for correct spelling, syntax, and meaning. Finally, the specimen is compared with previous ones, if available, and retained for comparison with future specimens." With the subjects studied, copying was easiest, spontaneous writing the hardest and dictation in between. Some specific findings are:

Patients with aphasia: Tendency to leave specimen incomplete; marked difficulty in spontaneous writing; better form than the next group;

Patients with organic mental syndrome: More prolific writers than aphasics.

Both groups: Illegibility, micrographia, macrographia, spelling errors, perseveration.

On page 202 he says: "What is of special interest is the manner in which handwriting was found to reflect the deterioration or improvement in the mental status of patients with other evidence of aphasia or an organic mental syndrome. More specifically, handwriting was shown to be well correlated with the patient's speech and level of consciousness." Such statements from medical literature will both give foundation for expert handwriting evidence supportive of other evidence of a writer's mental state and provide scientific rebuttal to unjustified psychological assertions based on handwriting examination.

104. NATIONAL ASSOCIATION OF DOCUMENT EXAMINERS. JOURNAL. 6:10-3, Feb. 1985. *Purpose tremor*. By Phyllis Cook.

She gives 11 graphic traits which can indicate that a signature "is inhibited by a person's psychological set." Purpose tremor is defined as tremor because of "psychological set." She distinguishes it from the tremor of forgery. If the reader

is like me and thinks of both of these as gross tremor or muscle tremor, the lack of illustrations in the article is all the more regrettable.

105. NADE. 7:5-13, May 1986. *Alzheimer's disease; a tangled web*. (Reprint from Temple Quarterly) By Sally Branca.

Quotes from case histories illustrate the progression and characteristics of the disease. Two handwriting samples summarize the information in that direction. The figure on page 6 is captioned: "Alzheimer's victims have difficulty in copying the simplest figures." A series of alternating X's and O's are inaccurately copied. On page 10 the figure is captioned: "As the disease progresses, the patient experiences greater deterioration in the visual-spatial skills." The figure shows a failure to copy two pairs of squares, one with the smaller in the larger and one with the smaller to the side of the larger. One could never match the copies to the models in a blind test.

106. NADE. 12:23-30, August 1991. *The multiple personality type; a challenge for the document examiner*. By Ortrud Dunbar Bowman.

Addressing the problems encountered in assessing the wide variations in a subject's signatures and writings, the author asks and answers: "Are we dealing with a multiple personality type? More than likely. With so many rapid changes, produced subconsciously, in slope, height, width, and letter design, especially in the capital T of 'Tara' could be a clue to a personality identification problem." And so on. It is ill advised for the handwriting expert to engage in such speculation. A better practice is to pose the difficulty to the attorney heading the case and request relevant, reliable information.

The wealth of illustrations, five full pages, are the value in the paper.

107. NADE. 12:1-9, Nov. 1991. *Determining intoxication from handwriting*. By Catherine Lane.

The Seagram's ad showing five signatures affected by progressively increased drinking begins the paper. The author wrote the company for data on the ad, but got no response. The ad is excellent for a campaign against drinking and driving, but the author asks if handwriting can tell the degree of inebriation. The study reported in Item 67 is summarized along with fact that "no correlation was found between the peak level of alcohol in the blood and the number of signs found in the writing of the subject."

She discusses other studies, giving in depth the one she conducted, along with illustrations. The handwriting traits characterized by consumption of alcohol in her study were confirming of those found in previous studies. The affect, though, is individual. She lists other factors which must also be considered, such as food consumption, individual capacity or tolerance for alcohol, rate of drinking, and activities while drinking. Some factors slow up the affect of alcohol and others increase it. She also noted that her subjects did not have the radical changes in handwriting which the Seagram's ad showed. See also Item 133, which is a more extensive and in-depth report on the same research.

108. NADE. 12:21-8, Nov. 1991. *View of the 1991 mock trial from a medical perspective.* By Patricia Wellingham-Jones.

The author, now retired, is an R.N. and has a Ph. D. At its 1991 conference NADE ran a mock trial which featured questioned signatures of a woman under medication and with an I.V. in her hand. The author conducted a research project on her neighbors and friends to see what a "mock I.V." would do to their writing. The illustrations show some easily noticeable disturbance. She also gives a chart showing the medications for the woman in question and the adverse reactions these medications could have had on the handwriting. With these two sources of information and a study in "configuration" of the questioned and genuine signatures, the author concluded that the questioned signatures were genuine.

The mock trial had seen a split in opinion among those attending the conference, all of whom were organized into two "juries." Both were hung juries. I had also concluded that the signatures were genuine after I had organized all exemplar and questioned signatures into a chronological arrangement. Such a method will clearly indicate any patterns of progressive change as well as any anomalies, such as unexplainable reversion to a previously healthy style of writing when medical records and other evidence indicate no remission.

109. NADE. 13:1-6, Feb. 1992. *Effects of drugs in handwriting.* By Patricia Wellingham-Jones.

The author gives a summary of the general discussion found in her book discussed on page 14. The paper ends with a list of "Handwriting in Health and Illness Cautions," which I paraphrase, summarize and expand a bit:

- It is illegal to diagnose medically without a medical license.
- Handwriting is "non-specific" and so only gives clues to health conditions.

- Recognizing health clues in handwriting is a special skill.
- We need to obtain relevant and reliable medical information.
- There is no law that health conditions must affect handwriting.
- Indicators must characterize the writing.
- There must be a complex of parallel indicators.
- Other things may cause the same effects in handwriting as do health conditions.
- A short sample may show no indicators.
- The longer the sample the more likely health indicators will show.

110. NADE. 15:7-14, July 1993. *The aging population and handwriting*. By Patricia Wellingham-Jones.

The author gives information on the elderly which is both reassuring to the reader who must age someday and practical for the handwriting expert. Changes most commonly to be expected in the handwriting of the elderly are described. The potentially serious problem of senior citizens' taking combinations of drugs is discussed and the implications for handwriting examination of that problem are described.

Four quotes from elderly persons concerning old age are used to set off segments of the paper. The lead off quote is from one of America's most beloved comedienne of the 60's, Moms Mabley: "Old age . . . You just wake up one morning and you got it!" The fourth and last from Leon Eldred is very sobering to the young who cannot yet imagine themselves as old and possibly infirm: "If I'd known I was going to live so long, I'd have taken better care of myself."

111. NADE. 16:30-5, Dec. 1994. *Attention-deficit hyperactivity disorder*. By Patricia Wellingham-Jones.

This was the last paper on health and handwriting which the author had published in NADE Journal. She not only had long experience as a registered nurse, but she was an accomplished handwriting expert before retirement. Her quality research work consisted of both primary and secondary research. Her writing style is clear, concise, intelligible and packed with reliable information. I also consider her a good friend and do not hesitate to recommend her writings.

This paper begins: "The purpose of this paper is to illustrate how attention-deficit hyperactivity disorder (ADHD) may appear in handwriting." Please note the use of the verb "may." Some critics of handwriting repeatedly voice the

criticism that a condition cannot ever affect handwriting unless it affect every handwriting sample of whatever quality and extent by any person afflicted with such condition, and they may even demand that it do so in precisely the same way in every situation. Additionally, grossly uninformed critics demand that each factor affecting handwriting do so in its own unique way so that the handwriting becomes a self-sufficient tool of diagnosis. The only health condition which is absolutely guaranteed to have its necessary effect on handwriting is death. Once dead the writer loses all ability to handwrite. However, that fact has not prevented some enterprising survivors from bringing forth purportedly genuine handwriting dated after a decedent had deceased.

Back to the paper under consideration. The author surveys papers in the medical literature and applies their information to the problem the handwriting expert must resolve. Two full pages of illustrations are given, four from a female subject at ages 11, 12, 15 and 21. The fifth and last illustration is of a 20 year-old college woman with ADHD. The four samples from the one subject all show “the wavers and jolts of fine-motor incoordination (producing angularity).” The more disturbed traits from early on (changes in slant and size, tremor and jerkiness, stops and starts) ameliorated to some degree over time but never entirely disappeared. The second writer had much greater fluency, though careful observations would reveal some incoordination throughout the script.

112. NADE. 22:3-9, Spring 1999. *Alcohol and handwriting*. By Beryl Gilbertson.

The abstract concludes that the paper “suggests that supporting evidence from the scientific disciplines, which is easily obtainable, can be applied in court to answer the question: ‘How do you support your findings.’” Hopefully this monograph will contribute to making it a bit easier yet to obtain such information.

One of two things I disagree with is that the works published in the questioned documents literature offer little help to the expert. The reader can retrieve the studies cited herein and make an independent assessment in that regard. The second disagreement I have is that the findings from the studies by Hilton, Item 86, and Rabin and Blair, Item 67, are to be viewed with reservation because the texts which subjects wrote were copied. She maintains that “copying is a less complex task than spontaneously produced writing.”

Copying would seem to add the elements of reading, comprehending and adopting the copied text as the mental expression one is to write. Papers reviewed

herein, which say copying was easier, studied the mentally afflicted. For the mentally healthy and graphically mature writer, spontaneous writing eliminates the first three requirements. Further, as one completes the copying of one passage, the need to retrieve the next passage to be written causes a pause in writing and then the need to recover the place and the pace of the writing.

With those two caveats, and very minor ones they are, the author's theme of using literature from other disciplines and her distilling of relevant data from medical literature are recommended to the expert. The day must surely come when attorneys and judges will justly tax handwriting experts for lack of familiarity with relevant works in other fields.

113. NEUROLOGY (NEW YORK). 32:203-6, Feb. 1982. *Primary writing tremor; a selective action tremor*. By H. L. Klawans, et al.

A primary tremor is one which occurs principally during a specific activity, in this case writing. Six cases are described. The etiology and mechanism of the disorder is not well understood. Of four medications, only the anticholinergic gave from mild to marked relief. The two illustrations show Archimedes screws (spirals) written by two patients before and after medication.

114. NEUROPSYCHOLOGIA. 10:343-53, 1972. *Writing disturbances in acute confusional states*. By Francois Chedru and Norman Greschwind.

I quote the opening abstract in full: "Studies of writing ability were carried out in 34 acutely confused patients. Their performances were compared to those of 10 controls and, in 24 of the cases, to their own performance after recovery from confusion.

"Writing was impaired in 33 of the 34 cases. The writing disorder could involve the motor and the spatial aspect of writing as well as spelling and syntax. It was the most constant and the most striking linguistic disorder seen in these patients. It disappeared when the confusion cleared. The spelling disorder had the following features: high error rate in consonants and of small grammatical words in their entirety, high rate of omission and substitution, high involvement of the last letters of the words.

"The problem of pure agraphia is discussed in the context of these findings."

Note that one patient showed no graphic signs associated with acute confusional states (ACS). In the text discussing occurrences of specific features, none were found in every patient's writing during ACS and/or not in the same

manner. There is no infallible natural law that graphic indicators of any type must always appear when their cause is present nor be manifested in the same way in all cases of the same cause. There are far too many influences at work at any moment while a person is writing, influences which may augment, decrease or eliminate each others' effects. That is one of the reasons why handwriting evidence in and of itself is not probative of the presence of the reasonably possible cause of a particular set of indicia observed in the writing.

The data are reported under five categories as follows.

1. Motor impairment. 10 subjects had mild tremor; 5 were illegible. Other indicators were awkwardness, omitted loops, perseveration, omitted I-dots, crowding of letters, adjacent letters combined into a new one, and micrographia.
2. Spatial disorders. 23 had misaligned letters. Some had reduced margins.
3. Reluctance to write was shown by 19 subjects.
4. Syntactical disorders. 14 did not write in full sentences, though their speech was proper.
5. Spelling and other linguistic errors. Two tables report misspellings as to parts of speech, part of the word, and whether by omission, addition or substitution. After recovery from ACS, these reduced significantly in kind and occurrence to become similar to those in the control group.

They then discussed "writing disturbances in relation to other disorders of higher cortical functions." At the end they quote other authors to the effect that writing seems to be "a very delicate indicator of consciousness impairment." They then ask: "Why is writing so fragile? It is possible that writing is readily disturbed because it depends on so many components (motor, praxis, visuo-spatial as well as kinetic and linguistic). Furthermore, most normal humans exercise their speaking abilities and their comprehension of spoken language constantly.... It is, however, only a minute fraction of the population, even among the highly educated, who use their writing abilities extensively. Writing is therefore very rarely, if ever, an over learned and automatic skill."

That last observation should give the handwriting expert much pause. It supports the viewpoint that the so-called indicia of forgery are not per se indicia of forgery but indicia of an unskillful writing act.

115. PENNSYLVANIA LAW JOURNAL-REPORTER. 4:2, col. 1, March 16, 1981. *Questioned document examination: When the writer is aged or infirm.* (Part 2) By Renee C. Martin.

116. PERCEPTUAL AND MOTOR SKILLS. 9:227-36, 1959. *Effects of alcohol on the graphomotor performance of normals and chronic alcoholics*. By Clarence A. Tripp, et al.

In a well designed and controlled experiment 68 alcoholics were tested with a control group of 18 “normals.” Ethanol in fruit juice was given in the morning on empty stomachs to a precise blood alcohol level. The findings are summarized on page 235:

“The present study was designed to compare the graphomotor functioning of 65 alcoholics with that of 18 normals who were given a variety of handwriting tasks to perform both when sober and after ingestion of ethanol. These tasks included the writing of a standard sentence, and a sequence of u-shaped loops (garlands), both spontaneously and under the constraint to write as lightly as possible. Measures of pressure, variability, ataxia, and speed were recorded on the graphodyne. Ss' age, weight, and physical strength were also recorded. The normals turned in a performance generally superior to that of the alcoholics. The higher the demands of the task, the larger was the difference between the two groups. Ethanol had the effect of pushing the two groups in opposite directions: while the performances of the normals were impaired, those of the alcoholics showed marked improvement. Ethanol induced the normals to write in ways ordinarily characteristic for the alcoholics. However, when asked to maintain control in a difficult task, they were able to do as well as when sober. The handwriting measures did not correlate with the measures of Ss' age, weight, or physical strength. Some physiological and psychological conditions and processes which are most likely to account for the findings were suggested.”

Though “ethanol induced normals to write in ways ordinarily characteristic of alcoholics,” earlier in the paper it was noted that there was a great difference in degree of the disturbance.

117. P&MS. 13:58, 1961. *Hypnotic automatic writing and a proposal for elucidation of unconscious influences in physical experimentation*. By Jerome M. Schneck.

118. P&MS. 62:265-6, Feb. 1986. *Handwriting analysis in diagnosis and treatment of alcoholism*. By Thea Stein Lewinson.

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119. P&MS. 72:1324-6, 1991. *Mouth-writing by a quadriplegic*. By Patricia Wellingham-Jones.

The onset and history of the quadriplegia in a 26-year-old woman is described. Four handwriting samples are pre-illness, early try at mouth writing, 3 months later and one and a half year later. Size in the mouthwriting samples reduces as she develops skill, as does the awkwardness and irregularities. Allowing for those traits, the idiosyncracies are clearly the same in the first and last samples.

120. P&MS. 77:1043-51, 1993. *Cervical spine surgery and handwriting: A case report*. By Patricia Wellingham-Jones.

In an excellent linear study, handwriting samples are shown in 11 figures, ranging from prior to any symptoms manifesting to one year after surgery. Figure 3 is a sample "written while wearing a splint on the right wrist and hand." Except for Figure 4, sample within 24 hours after surgery, all samples are identifiable as by the same person, provided one knows of the timeline for the illness and operation relative to the samples. Absent that knowledge, only contemporaneous samples of known genuineness would assure a definite, or even highly probable, identification. This paper is highly recommended as an object lesson in the desirability for contemporaneous exemplars when health issues are involved in handwriting identification. It can also serve as a demonstrative exhibit convincing the fact finder of the impact health issues can have on handwriting over time.

121. P&MS. 81:1243-52, 1995. *Attention-deficit hyperactivity disorder: A longitudinal case study of handwriting characteristics*. By E. Edwards Peebles, et al.

A female subject's handwriting samples were studied from age 11 while on Ritalin, after she stopped taking Ritalin at age 12, and through the years until age 21 when she was without ADHD. Size and slant of target letters were measured for 293 samples written across the years. The reader can make other observations with the five samples illustrated, which were written at ages 11, 12, and 15, and two samples at age 21.

The paper opens with a summary discussion of ADHD and provides three plots showing measurements made at 8 specified ages.

122. POST-GRADUATE MEDICINE. 19:A36-A48, Feb. 1956. *Influence of serious illness on handwriting identification*. By Ordway Hilton.

123. PSYCHOLOGICAL BULLETIN. 91:589-608, May 1982. *Handwriting posture and cerebral organization; how are they related?* By Jerre Levy.

The author replies to critics of her research relating hand posture during writing to brain organization. See Item 76. On the opening she makes a statement handwriting experts can well agree with, having weathered some of the same off-target criticisms she weathered: "The scientific endeavor is designed to elucidate the nature of reality, and no amount of argument among researchers can establish what is or is not true. Nonetheless, in our efforts to discover nature's secrets, we can often be led down false paths, accepting for awhile conclusions that are false and rejecting for a time possibilities that approach truth. The saving grace of science is that no single point of view is accepted by all, and in the long run wrong ideas are established as such, and remaining possibilities regain their rightful place as serious issues to be addressed."

She proceeds to offer "a radically different" view than her critics offered, suggesting researchers "can more readily perceive the real issues that command our attention." In the same way, we handwriting experts must gently nudge legal and scientific attention away from the false premises asserted by superficial experts of inadequate theoretical understanding and from the vociferous clamorings of anti-expert experts who attack scientific handwriting identification by focusing solely on the inadequate theory of the superficial experts.

The author systematically surveys papers published in the wake of her groundbreaking research. She evaluates their findings and reasoning, offering her views with logic and economy. She explains what in her critics she would agree with and the assumption needed for that agreement. For example, critics said that the work of Levy and Reid, Item 76, was incomplete. On page 605 she offers this astute and reasonable assessment of such criticism: "Levy and Reid (1978) did not predict the variety of motoric and neuropsychological differences that have been found. If it is this incompleteness that Weber and Bradshaw (1981) are referring to when they say that the relation between hand posture and brain organization is different from what Levy and Reid proposed, then I would concur. But then the same could be said for almost any researchers who investigate a new phenomenon."

For anyone interested in the state of the topic at the time this paper was published, this is an excellent paper. The bibliography cites more than 3 dozen papers which are discussed, an inkling of the massive amount of material which the med-psych periodical literature has to offer on the topic of handwriting.

124. PSYCHOLOGY AND AGING. 8:360-70, 1993. *Handwriting performance in younger and older adults: Age, familiarity, and practice effects*. By Roger A. Dixon, et al.

Two experiments confirmed that older adults write significantly slower than younger, that unfamiliarity with the writing task increases the difference while practice reduces the difference. Several writing tasks were used. There are several implications for handwriting identification, among which are the following. Slow speed of handwriting must not be automatically equated with a false writing. Exemplars far removed from each other in time may well have problems which the expert must address. Some assumptions used in handwriting identification are supported. One such is that more familiar writings, especially the signature, are made faster with more spontaneity than unfamiliar writings.

125. PSYCHOMOTOR MEDICINE. 11:354-60, 1949. *Handwriting in rheumatoid arthritics*. By Louis A. Gottschalk, et al.

15 patients with rheumatoid arthritis were tested along with a control group of 15 patients with other illnesses and a control group of 15 healthy subjects. Letter heights, ratios and rhythm, along with variations in these, were measured with the graphodyn. The measurement of irregularity was nearly double in the two groups of patients relative to the healthy controls. The two groups of patients had nearly the same measure of irregularity, underlining the point made previously that different health conditions can have the same or similar effects upon handwriting. Item 101 offers by far the more practical guidance for the expert when faced with arthritic writing, though this paper presents the more rigorously controlled research.

126. QUARTERLY JOURNAL OF STUDIES OF ALCOHOL. 32:1070-82, Dec. 1971. *Handwriting changes following meprobamate and alcohol. A grapholometric-graphological investigation*. By Brigitte Brun and Niels Reisby.

The introductory summary states: "In young men and women, separate administration of alcohol and meprobamate caused more handwriting errors than the placebo and the combined drugs still more. The effect of alcohol alone was greatest on graphometric measures. Under all drug conditions the handwriting of subjects with the best integrated personalities was least affected."

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127. SOUTHERN CALIFORNIA LAW REVIEW. 10:96-7, 1936. *Use of signature as evidence of mental condition.* {Gibbons v. Redmond, 142 Kan. 417, 49 P2 1035}

The remarks given for Item 44 apply to this review of the same case. See also Item 136.

128. TEXAS REPORTS ON BIOLOGY AND MEDICINE. 33:370-90, 1975. *Drug-induced handwriting changes; an empirical review.* By Leon J. Gross.

The following is adapted from a paper on neuroleptic agents and handwriting.

The abstract ends with: "Psychiatric assessments of subjects in this type of research provided data which indicated that psychological stability may be a factor influencing the susceptibility of one's handwriting to drug induced changes." This agrees with common experience that some of our acquaintances are more reactive to alcohol and various drugs than others.

This survey of about 30 published research papers is an excellent summary introduction to the topic. On page 371 he explains why handwriting is a good tool for drug dosage measurement: "There are several advantages in utilizing handwriting for this purpose. First, the analytic sample is easily obtained and provides a permanent record. Second, since handwriting is one of the most complex, coordinated human activities, intrusions upon the nervous system should logically produce alterations in one's usual writing pattern. Finally, since it is such a well-established act, handwriting should provide a conservative measure of the actions of pharmacological agents." Since there is a permanent record, the research or test could be repeated by other persons without limits of time or space. Do bear in mind that the statement just quoted assumes a medical environment with medically trained personnel evaluating the data in relation to other medical data.

On page 377 he begins the consideration of Haase's work: "Perhaps the most sophisticated, significant, and replicated research in the area of drug-induced handwriting changes was pioneered by Haase (1961) in his work on the relationship between the therapeutic response to a neuroleptic agent and the handwriting changes which are produced." The handwriting expert who is acquainted with the work of Haase can competently testify to supporting scientific data for some aspects of handwriting identification. The author also surveys other drug and handwriting studies, such as with alcohol and L-Dopa. Being a survey, there are no samples or tables reproduced.

129. TRAUMA: MEDICINE, ANATOMY, SURGERY. 2:73-100, August 1960. *Testamentary capacity: Alcoholism and alcohol brain disease.* (p.81: Handwriting performance.) By Robert J. Stoller.

It comprises about a quarter page summary.

130. WORLD ASSOCIATION OF DOCUMENT EXAMINERS. JOURNAL. 105:6-10, June 1988. *Triazolam, handwriting and amnestic states: Implications for the document examiner.* By Deborah E. Boatwright.

See comments for Item 92.

131. WADE. 108:3-7, Sept. 1988. *Questioned document examination of arthritic impaired handwriting.* By Larry S. Miller.

The paper gives a brief consideration of the various types of arthritis and the nature of the illness. Relevant procedures in questioned documents are next outlined in summary form. He states that arthritis induces characteristics which are also indicative of forgery. That is only partially accurate, since the quality of the two sets of characteristics differ, just as genuine health tremor differs from the tremor of forgery. He warns that those afflicted with arthritis will tend to avoid writing, thus there may be no contemporaneous exemplars written during arthritic episodes. 42 diagnosed patients were studied, 72% being women.

Twelve traits were observed in multiple writings from periods when subjects were in arthritic pain and when they were not. "Percentage of significant dissimilarities" between writings during arthritic pain and those absent the pain ranged from 48 for beginning and ending strokes to 97 for line quality. I am not clear on how precise numerical values for percentages were determined. Use of the term "significant dissimilarities," if intended in accordance with standard terminology, would mean differences which would be evidence of a different writer absent a reasonable explanation otherwise. This was a well done research project. Table 1 on page 108-4 summarizes characteristics of writings done during arthritic episodes. It is not clear whether this paper reports the same research as the paper in Item 101 by the same author.

132. WADE. 131:3-11, September 1990. *Patterns of natural variations in Parkinsonian writing.* By Stella E. Vodenos.

She states on page 131-3: "Astute analysis considers all factors that may apply and that more than one condition can manifest in the writing, especially of the

aged.” Factors which must be considered include mechanical difficulties, medication, stage of the disease, exacerbation of otherwise ordinary anxiety or stress, and, as the condition progresses, mental confusion or dementia. Untreated Parkinsonism causes letters in handwriting to become progressively smaller while remaining well formed. See Item 28 for explanation and illustration of Parkinsonian handwriting before and after medication. Graphic indicators of stress are also given, though Item 11 might offer a better explanation. The bibliography is well done and five pages of illustrations are generous indeed.

133. WADE. 140:3-15, June 1991. *Alcohol and handwriting, and driving under the influence*. By Catherine Lane.

This is an earlier report on the same research as discussed in Item 107. More information is given on the way alcohol enters the bloodstream and causes inebriation, along with how its effects can be slowed. More details on the subjects in the study are given, and the number of illustrations which demonstrate the findings are about fivefold.

134. WADE. 152:3-15, June 1992. *Characteristics of the writing of the blind and visually impaired*. By Mary I. Duncan.

Samples from 14 subjects, each of whom is described with type of ailment, were taken, all samples being reproduced in the paper. After the data on each subject a note gives the pertinent traits observed in the handwriting of that person. Appendices show how the same scene would appear to persons with different sight impairments and common writing aids for the blind. Conclusions of page 152-13 are in summary:

1. The writing of the blind and visually impaired is identifiable.
2. Their writing can be legible, even after many years of blindness.
3. The following may characterize their writing: “false-start marks (pen scratches); pen rests; hesitation strokes; overlapping of two or more letters; flattened letter bases or cut-off extender letters; placement of signature with writing above or through signature line; poor alignment with some words slanting up and others slanting down; tremor due to slow, cautious movements; and inconsistent placement of letters in proportion to each other.”

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135. VISIBLE LANGUAGE. 24:163-75, Spring 1990. *Questioned documents: The human trace as a body flow*. By Marie-Jeanne Sedeyn.

I deliberately put this item last out of alphabetical order. Together we have seen a small selection of the vast amounts of published papers reporting scientific investigations into various aspects of handwriting related to health factors. Those reports on health aspects of handwriting are a small portion of all published papers in all the sciences studying handwriting. Yet many people insist that this awesome mound of materials does not exist. Witness the abstract to this particular paper: “Although handwriting has long been recognized as something entirely individual, it has not yet been the subject of true scientific and objective examination. This article tries to promote an interest in the scientific observation of handwriting. A methodical and complete description of each written document would allow researchers to solve identification problems, investigate group characteristics and bring forth new information in a number of different fields.”

When those within our profession repeat this fallacy, asserting reality is measured by their own unawareness of its true extent, it is no wonder that critics blindly and dumbly repeat the same fallacy, even building reputations for astuteness and scientific perspicacity upon such sands of misconception. But then it is much easier to be sure of everything than it is to learn just a few things, and it is much easier to be a skeptical critic than it is to be a studious inquirer. Those cultivating such easier ways also have the advantage of not being inconvenienced in having to investigate anything in order to be sure of it, and so they have more time, more energy and more opportunity to assert all things fallacious. There is an old proverb which is far truer today in this age of electronic mass media greedily devouring every superficial sound bite that comes along (an age which is also marked by a very shortened human attention span), than it ever was: “A falsehood travels halfway round the world before Truth can get her boots on.”

I hope that this monograph will assist the champions of truth regarding handwriting identification in getting their boots on and chasing down and defeating the falsehoods and fallacies which have belied our science and skill. I also fondly hope that fewer of our number will continue to parrot those fallacies so mindlessly.

CASE CITATIONS

Sadly, handwriting experts, as well as attorneys and judges, are unaware of the strong tradition in case law for the reception of evidence of both mental/emotional disturbance and physical illness from the handwriting. The following is offered as an indication of the long standing tradition of courts of law in receiving such evidence and of the sad state of current awareness of the scientific reliability of it, provided the expert has mastered the science represented by items in this bibliography and of related materials in many languages and preserved in libraries throughout the world. Our computers permit us to begin the research in our homes and offices. However, be very wary of “information” freely available on web sites, since the most inept, superficial, misinformed and hatchet grinding “author” can today publish worldwide without any review by those who can properly evaluate accuracy. Standard journals are the best warranty against erroneous data, though do realize that they are far from inerrant.

A. AMERICAN LAW REPORTS ANNOTATIONS

136. ALR. 103:900-1, 1936.

Competency of testimony as to one's mental condition, based upon handwriting. {Gibbons v. Redmond, 142 KS. 417, 49 P2 1035, 103 ALR 893 (1936)}

The annotation begins on page 900 with these words: “Testimony as to one’s mental condition, based upon handwriting, has been recognized by the courts as competent in the few cases where the question has arisen, but it is to be noted that in each case the witness had qualified either as a mental expert or as an expert in handwriting.” That currently attorneys and courts are unaware of the sound tradition for this practice is not nearly as wondrous as the fact that most handwriting experts know neither the relationship of mental disturbance to graphic expression nor the history of such testimony in questioned documents.

That does not mean that it would not be serious professional error for one to undertake immediately such work. First, there should be assiduous study of both the historical and contemporary writings on the subject with prolonged practicum until the skill is mastered. A few selected items from the med/psych literature on the subject have been included in this monograph. There is vastly more available.

It cannot be emphasized too much that it is not character handwriting analysis which is being considered, but rather an active circumstantial condition at the time of writing which can have direct and experimentally demonstrable effects upon the handwriting. As noted before, the inference drawn from handwriting ought to be received in a context where it is supported by other credible evidence.

See also Items 44 and 127.

137. ALR. 134:641-3.

Changes in handwriting as evidence of change in physical or mental condition.
{Morse v. Century Cab Co., 297 NW 877, 134 ALR 635 (IA 1941)}

In the case itself, at 134 ALR 635, 639, the Iowa Supreme Court confirms the admissibility of evidence comparing signatures before and after the injury to support plaintiff's claim. Noting it might not have been of great probative value, the Court also notes that handwriting can change over time and with physical condition. However, all that was for argument to the jury.

The annotation discusses only the *Morse* case and *In re Little*. See Item 156.

B. OTHER REPORTERS

A few annotations in this section may duplicate portions of the insert on case law for Jacqueline Joseph's *Genuine tremor in handwriting vs. the tremor of fraud*, published by JT Research LLC of Portland, OR, February 2000. The reason is that Ms. Joseph kindly asked me to supply some notes for that portion of her text.

138. *Adams et al. v Adams*, 114 TX 582, 253 SW 605 (1923), 278 SW 1114

In will contest proceedings, it was error to exclude testimony by an expert witness that the marked deterioration in the handwriting of testator during the last few years of his life was an indication of senile dementia. The expert was a Dr. Williams.

139. *Adamson v Burgle et al.*, 186 SW2 388 (TX Civ Ap 1945)

It was not a legal conclusion when a physician said that testatrix "was mentally incapable of having written document of her own volition."

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140. *Belcher v Booth et al.*, 164 LA 514, 114 S 116 (1927)

An alleged holographic will was found 21 years after decedent's 1902 death. It was ordered probated in an ex parte proceeding.

At page 118 it is reported that doctors testified that the illness of testator would impair his writing. "The photostatic copy of the will in the record, to the uninitiated eye, leaves no doubt that the person who wrote the purported will had muscular control of the arm and hand and was free from nervousness at the time it was written."

The will was found to be false.

141. *Brien v Davidson et al.*, 225 IA 595, 281 NW 150, rehearing denied 225 IA 595, 282 NW 480 (1938)

Handwriting experts relied on shading, line quality, tremor and many other details.

142. *In re Brown's Will*, 171 Misc 1008, 15 NYS2 387 (Sur Ct Monroe Cty 1939)

At page 391 it is stated that the questioned handwriting indicated competence by the correction of misspellings. At page 392 the judge said that specimens of handwriting showed "steady nervous control of her muscles, and through them wrote well formed intelligent words and correct entries in a free, natural and calm movement. . . ." He relied on contents, lists of addresses and financial computation. He then stated: "My experience has been that there is hardly any approach to the state of mind or emotion of a decedent that is as immediate and as satisfying as is a goodly quantity of the person's handwriting, especially in correspondence of intelligent content, and also in books of account, and check stubs showing accurate arithmetic, and intelligent co-operation with business custom."

143. *Cameron v Knapp*, 520 NYS2 917 (Sup Ct NY Cty 1987)

Expert testified that tremor in handwriting made at time of surgery by the eye surgeon showed a shaky hand. The appeal judge said that there was no precedent for a handwriting expert to testify about the writer's mental or physical condition from examination of the handwriting. As this bibliography demonstrates, that was an incorrect opinion.

The Court references several cases on the issue and then says in footnote 1 at page 918: "The cases cited above were the only ones found where a party

attempted to have an alleged handwriting expert testify as to a handwriter's mental or physical capacity. In none of these cases was such testimony permitted." However, that estimate is not precisely correct. First, a few of the cases permitting such an expert comparison, and some where the court itself exercised the comparison, are given in this monograph. Second, the cases cited by the *Cameron* Court are not all addressing the issue in question.

Carroll v State, 276 AR 160, 634 SW2 99 (1982), is cited as not permitting expert testimony of physical or mental condition from handwriting, but that case only said a graphoanalyst had not proven his qualifications to testify as to authentication of handwriting. *State v Anderson*, 379 NW2 70 (MN 1985), did not address health and handwriting, but it had to do with whether graphology per se was admissible, nor did it address the proffered expert's qualifications. In *People v Hester*, the court had denied admission of character handwriting analysis but said "being in fear and being startled can possibly be determined by the examination of a particular piece of handwriting." Thus it did not rule expert testimony regarding mental state from handwriting inadmissible but rather gave it a supportive observation. At least in citing *Daniels v Cummins* (see Item 146) the *Cameron* Court was correct, as also regarding *Warren et al. v Hartnett et al* (see Item 171). But those are in the decided minority on the issue.

Though the case report has the severe errors mentioned, one must keep in mind that the proponents of expert evidence bear the burden of proving admissibility, relevance and reliability. In that regard it is stated at page 918: "Here, the plaintiff, although requested to, was not able to introduce any evidence showing that the results of 'handwriting analysis' are generally accepted by the medical or scientific community as reliable for determining the fitness of surgeon." Someone was either too lacking in curiosity or too lazy to go to the nearest university medical library and look in *Index Medicus*. And that is just one resource for finding relevant medical and scientific writings.

144. *Carr v Radkey et al.*, 384 SW2 736 (Civ Ap TX Austin 1964); reversed and remanded, 393 SW2 806 (TX 1965)

At 393 SW2 806, page 809, out of the hearing of the jury a doctor testified that decedent was manic/depressive, wrote the will in a period of remission and knew what she was doing. He was not permitted to say so in front of the jury, but lay witnesses were permitted to testify to the contrary. The Texas Supreme Court held that the exclusion of this evidence was harmful and thus reversible error.

145. *In re Cruger's Will*, 36 Misc 477, 73 NYS 812, 107 NY -- (1901)

A holographic will was attacked unsuccessfully partly on the basis that "the handwriting did not exhibit much tremulousness or physical decay," though testator had paralysis, tremor of hands, etc.

At page 813, apparently both sides presented both lay and expert handwriting evidence, and the court made its own comparison to decide the genuineness of the writing. "Tremulousness of the hands, inducing a shaking handwriting, was also a symptom." The trial court received and considered testimony on health and handwriting.

146. *Daniels v Cummins*, 66 Misc 2 575, 321 NYS2 1009 (1971)

At page 1012 it is noted that Hanna F. Sulner was plaintiff's expert. She said decedent's signature on deed was genuine but showed "that at the time of signing the deed, she was not of sound mind and did not know what she was doing." The Court quoted from *Richardson on Evidence*, 9th ed., §392: "An expert's testimony should be confined to comparing the disputed and conceded writings, and giving an opinion as to whether they were written by the same person. He cannot testify directly as to the genuineness of the signature in question." That was an archaic opinion to say the least. Since some recent Federal decisions have ill advisedly adopted this throwback to the mid 1800's, one could even say it was a quaint opinion, except that it sadly gives solace to no one but forgers, perjurers and their preferred anti-expert experts.

At pages 1014 et seq., the Court also quotes authorities in questioned documents on the unacceptableness of Sulner's testimony. However, Albert S. Osborn, the first one quoted, in his book, *Questioned Documents, second edition*, gives case law making it acceptable and also gives indicators of mental disturbance in handwriting. The Court misses the case law, subsequent to Osborn's book, admitting such testimony from either handwriting or medical or psychological experts.

At page 1016 it is asserted: "[T]his court's research has failed to reveal any adjudication in which judicial sanction has been accorded such speculations and deductions based upon a mere signature." Apparently someone failed to cite the relevant cases from Sulner's own book, *Disputed Documents*, 1966, Oceana Publications, New York. The Court goes on to say: "To allow such testimony—or if received in the absence of due objection—is to open the floodgates to speculative testimony devoid of genuine scientific foundation. The endeavors by

courts and juries in fact finding processes would not be aided by granting judicial sanction to graphologists; on the contrary, they would be stultified and shunted into a mystical miasma."

However, in none of the cases cited herein, which discuss precisely such testimony, is there any indication that the expert had a graphological background, except the instant case. Nevertheless, as always it is the party proffering expert evidence which bears the burden of demonstrating its admissibility. As to the court's failing, that was either to have inadequate law clerks doing the research or not to bother with double checking the work. Of course, with the discovery of the mass of pertinent case law the judicial quote last given would have had to wait upon another occasion for the honorable justice to exercise such purple prose. Maybe one's pretensions to soaring phraseology got the better of one's professional tendency to sober legalese.

147. *In re Darilek's Estate, Honsa v Hospodarsky et al.*, 311 P2 615 (CA 1957)

Testimony of a physician, psychiatrist, or handwriting expert regarding testamentary capacity from handwriting is too speculative.

148. *Entwistle v Meikle*, 54 NE 217, 180 IL 9 (1899)

One physician testified that handwriting was a test of sanity or insanity known to the medical profession. Another physician testified that it was a test of senility. This evidence was correctly received.

149. *Fellows v Fellows*, 220 LA 407, 56 S2 733 (1951)

In this case an expert gave testimony as to health and handwriting, but attendant facts showed his inference to be false.

"There were three so-called expert witnesses who testified in this case." George H. Lacey impressed the trial court very favorably. S. F. Von Aaron, 82 years old, was called by defendant. He was not as well qualified. Mr. Ira N. Gullickson was also called by defendant. At page 737 it is stated of one defense expert: "His testimony, however, was more in the nature of a narrative on the general science of examining questioned documents, including handwriting, and particularly the handwriting constituting the will in question. A close observation of his testimony under cross examination will show contradictions to his testimony given on direct examination." The expert explained tremor in the disputed signature as a hangover, but decedent was proven to be off alcohol at that time and

had no health condition to cause tremor. The trial court made its own comparative examination and found no similarity.

150. *Gibbons v Redmond*, 142 KS 417, 49 P2 1035, 103 ALR 893, (1936)

In this case there was testimony by document examiner, J. C. Shearman, concerning the mental condition of the writer based on the signature. At 103 ALR 895 the signature in question is illustrated. See Items 44, 127 and 136.

151. *Gott v Dennis, et al.*, 296 MO 66, 246 SW 218 (1922)

In an issue of undue influence a physician's testimony regarding the writer's mental condition as shown from the signature was admissible.

152. *In re Henry's Estate*, 276 PA 511, 120 A 454 (C) (1923)

Headnote 2 states: "A variation in the signature to a will from testator's usual and ordinary signature is not necessary proof of forgery, as the dissimilitude may be occasioned by a variety of circumstances, such as testator's age, state of health, spirits, hurry, care, position, or materials used."

At page 455 the court says: "...the weight of opinion evidence on a question of handwriting depends upon the cogency of the reasons given; here they do not appeal to us as convincing." Testator was a woman of 83, in feeble health, had recently lost a son, with failing eyesight and broken left wrist, and she had used a defective pen. All apparent indications of forgery were thus reasonably explained.

Note that none of the mentioned possibilities would be a reasonable explanation of anything unless shown to be credible and cogent evidence. Mere possibility, theoretical and speculative, ought never be taken as proof of anything.

153. *Herd v Herd*, 293 KY 258, 168 SW2 762 (1943)

At page 766-7, after examining decedent's writings which talk of his growing weakness and then examining the will, the Court of Appeals says: "The will, written about a month later, reveals nervousness, hesitancy and instability in following straight lines and directing the form of the letters...." The Court goes on to describe other features indicating copying from a text, the weakness of writer and maybe writing with the tablet on his knee. A forger would have written a neat copy through imitating earlier, healthier writings. The Court also notes alignment, German handwriting system style and other features as indication of genuineness.

154. *In re Jerrells' Will*, 63 NYS2 499 (1946); appeal dismissed, 70 NYS2 580 (1947)

At pages 503-508 is an extensive survey of decedent's writings, starting with an approving quote from *In re Brown's Will*. Both the handwriting and the contents of the writing indicated sanity. Testator used his own phonetic spelling system.

155. *Succession of Lirette*, 5 S2 197 (LA Ap 1941)

Hon. R. A. Bazet, clerk of the District Court, testified as an expert for contestants. At page 199 it is said of his testimony: "He admitted that the signature of a person often varies, depending on his physical condition, age and other circumstances." The Court of Appeals made its own comparison of handwriting. "[A person's] signature and handwriting will sometimes be slightly different over a period of time, and there will often be a difference on account of his physical condition, infirmity, feebleness, nervousness, or the kind of pen and ink he uses, as well as the position he is in when writing."

156. *In re Little's Estate, Sparling v Stephens et al.*, 46 CA Ap 776, 189 P 818 (1920)

Headnote 9 states: "That testator's handwriting as shown by his will evidenced nervousness or unsteadiness, and that he did not form the letters as evenly or regularly as was his custom, does not prove that he was mentally incompetent to make a will."

Headnote 10 states that the misspelled name of devisee was not evidence of testamentary incapacity.

At page 824, the Court of Appeals says: "But counsel for the contestant, in their briefs, make a minute and, withal, an ingenious examination of the handwriting of the deceased" to argue nervous and unsteady nature of will showed mental incompetence. The Court gives excellent statements that nervousness due to mental and physical strain clearly affects handwriting. The Court had photographic copies of the will and of writings made prior to degeneration. The Court concluded that the difference in writing only showed that the deceased was nervous, in declining health and addicted to alcohol.

157. *McSoley et al. v McSoley et al.*, 161 A2 216 (RI 1960)

Deposit slips in testator's own handwriting, made just before and after the execution of the will, were admissible on the issue of testamentary capacity. At

page 224, the result of the trial judge's review of these documents was that they showed that testator transacted business in a reasonable way. But the last sentence of paragraph reads: "He [the trial judge] also found that the deposit slips up to September 1, 1948 appeared to be in decedent's handwriting and that they were made out rather well and exhibited no disorientation."

158. *Morse v Century Cab Co.*, 297 NW 877, 134 ALR 635 (IA 1941)

Signatures before and after an incident were offered as evidence of change in physical and mental condition; this was of no great probative value, but admissible. Age also was judged from handwriting. See also Item 137.

159. *In re Estate of Powers*, 81 CA Ap2 480, 184 P2 319

Medical experts were offered to testify as to mental condition from handwriting. It was ruled inadmissible as being too speculative.

160. *Raymond v Flint*, 225 MA 521, 114 NE 811 (1917)

Headnote 4 reads: "The opinion of an expert on insanity, although not an expert on handwriting, was admissible for the purpose of explaining that a deceased's shaky handwriting indicated an impaired physical and mental condition."

161. *Risley v Indianapolis, B. & W. Ry. Co. et al.*, 7 Biss 408, 20 Fed Cas 11,859 (Cir Ct. IN 1877)

Headnote 1 states: "A variance in a signature is not necessarily proof of its being a forgery. Dissimilitude may be occasioned by a variety of circumstances, by the state of health and spirits of the writer, by the materials, by his position, or by his hurry or care."

162. *Schwarz v Taeger*, 258 P 1082, 44 ID 625 (1927)

Letters written in deceased's handwriting should have been admitted to show mental condition.

163. *Smallwood v St. Louis-San Francisco Railway Co.*, 263 SW 550 (1924)

In this case it was argued by one party that a right-handed person who signs with the left was not incompetent. The court ruled that it does not know whether that requires full possession of mental faculties.

Based on what has been surveyed in this monograph, we can say the proponents of the argument made two errors. First, no handwriting evidence in and of itself is probative of such a thesis. Second, none of the research reports cited herein, nor any other I know of, addresses ambidexterity as an indicator of mental competence.

164. *Smith v Salthouse et al.*, 147 KS 354, 76 P2 836 (1938)

Referring to *Gibbons v Redmond* (Item 136), handwriting evidence of mental capacity was held to be properly received. Handwriting expert Cochran was permitted to testify on that issue.

165. *State v Davis*, 154 AZ 370, 742 P2 1356 (Ap Div 2 1987)

A graphologist was not permitted to testify as defendant's expert that handwriting showed defendant's insanity. They might have gotten the same evidence in by offering handwriting, medical or psychological expert testimony in the tradition of *Gibbons v Redmond* and laying the proper foundation.

166. *State v Kozukonis*, 214 A2 893 (RI 1965)

A physician testified that a possible test for intoxication at the time of arrest would be comparison of defendant's signature then with one now. It was not abuse of discretion to refuse to permit defendant to sign his name for that purpose since it was questionable that such signature would be in defendant's normal and customary form.

167. *Steiner v Harejsi, et al.*, 147 KS 139, 75 P2 219 (1938)

Headnote 4 states: "In action to cancel deed on ground of grantor's mental incapacity, alleged peculiarity of grantor's handwriting was a proper subject for jury's consideration, and was not evidence on which reviewing court could make independent fact finding, divorced from conflicting oral testimony pertaining to mental capacity."

At page 221, the Kansas Supreme Court gives an important clarification to the case of *Gibbons v. Redmond* (Item 136): "What was there said cannot properly be construed as constituting an independent finding of this court that the writer was of unsound mind. It was intended to show there was ample evidence to support the deductions made by the witness who testified as a handwriting expert and other witnesses whose testimony pertained to the mental condition of the testator. The

trial court had there found the testator was of unsound mind and the questions before this court were the competency of the testimony of a handwriting expert concerning those peculiarities and whether there was substantial evidence to support the finding the testator was of unsound mind. Here the finding was the grantor had sufficient mental capacity to make the deed and that she was capable of understanding the nature and effect of the several instruments she had signed. The question of peculiarity of handwriting was one of the proper subjects for consideration in arriving at the finding of competency. The finding is supported by competent substantial evidence and hence we cannot disturb it."

In a word, handwriting evidence is confirming of other competent evidence of mental or physical condition of the writer, not an independent proof of it.

168. *Succession of Stewart*, 51 La Ann 1553, 26 S 460 (1899)

Testimony that the will was genuine was given by two experts. The handwriting showed nervousness, tremor, ill health and old age. Illegibility was deciphered and a disputed numeral determined by the experts, who were Judge J. C. Moise and Percy Benedict. The latter said he had arrived at his opinion not knowing who the parties or their counsel were.

At page 462 the Supreme Court of Louisiana says: "In our judgement, a person may be a competent witness to prove the genuineness of a will, without being able to decipher all the words written." And later they say: "We know that ordinarily the testimony of experts in matter of handwriting, uncorroborated, is frequently taken as being of little value, but here the testimony of these two experts is direct and clear. Their conclusions are sustained by highly intelligent analysis of every word, and letter of each word, after painstaking comparison with instruments of writing known, or admitted to be known, to be in the handwriting of the testatrix."

169. *In re Taylor*, 126 CA 97, 58 P 454

That the two pages of a will showed decided differences in the health of the one and the same writer did not mean that the pages were written separately, since health can change dramatically in a minute or from the effort at writing one's will.

170. *U.S. v Bollin*, 582 FS 339 (1983)

In footnote 4, at page 341, it is stated that due to ill health an exemplar "might not have furnished satisfactory indicia for viable comparison."

171. *Warren et al. v Hartnett et al.*, 561 SW2 860 (TX Ap 1978)

A handwriting expert testified from comparison of handwriting that the will in question was written by an alcoholic who lacked testamentary capacity. That had no probative value for various reasons: the handwriting expert was not an expert in alcoholism's effect on handwriting nor in mental illness; the expert had made no personal observations of decedent; there was no other evidence of alcoholism; no recognized science permits "divination" of mental capacity from handwriting analysis; and the opinion was defective even as that of a lay witness.

Once more, the expert truly was attempting something beyond his own competence, the party calling the expert had tried to make handwriting examination do the job all by itself, or someone had failed to lay a proper foundation from case law and professional journal papers.

It is interesting to note that when someone wants to dismiss forever the opinion of another, at times a belittling term is used to define the opinion, a term which those who hold it would never employ. In this case, "divination" is used to describe the claim of the expert witness. I am sure, if asked, that expert would have agreed that divination was something he would have never attempt.

CONCLUDING REMARKS

Considering together the more recent court cases cited and the more recent med/psych journal articles cited, one is struck by the anomaly that, whereas ever increasing numbers of scientific reports validate the relationship between handwriting and health factors, the admissibility of expert testimony in that regard seems to have all but disappeared. Why, one naturally asks. One cannot say the courts bear guilt for having become less and less knowledgeable, since it is not their obligation to research and master all aspects of all subjects which do or might come before them. Litigants have the burden of proof. One cannot say attorneys are at fault for failure to know everything about every expertise which might some day in some way be an issue in one of their cases. One can only look to the handwriting experts who today seem far less knowledgeable about their subject than handwriting experts of past years were, at least on this one issue.

No expert has any excuse for being unaware of any aspect of the expertise which relates to a commission which has been accepted. It is self-conceit which leads us humans to reason that, first, we already know just about all that we need to know concerning our particular expertise, second, if someone claims to know what we do not know, that person could not possibly surpass us and have something to teach us, and, third, our lack of knowledge of a thing is direct evidence of that thing's non-existence. Whereas above it was said courts and attorneys cannot be taxed with not knowing all the fine points of every expertise which comes before them or is serviceable in their cases, they certainly can be taxed for that third point, namely the self-conceit that, if "I" do not know of something in my field, then that something surely does not exist. We have seen such reasoning in some of the few pertinent reported court cases which were surveyed.

Intellectual humility. Intellectual humility is a prerequisite for learning anything at all. Humility is the virtue whereby we can simply, objectively and honestly acknowledge our own limitations. It is the virtue which leads us to seek out any and whatever assistance we require to overcome our limitations when it is incumbent on us to do so. Putting ourselves forth as handwriting experts ipso facto creates an obligation to seek out and study the findings of every discipline and science which bears upon the making and identification of handwriting. At any given moment we are not required to know absolutely all that can be known of our expertise. But as experts, at any given moment we are obliged to be ready and

willing to learn as opportunity avails itself to us or as the requirements of a particular case obligate us.

I hope that this modest contribution to the scientific literature of forensic handwriting identification will assist other handwriting experts to learn all that I have learned and, indeed, even more than that. I hope another and better author will build on what is presented herein and produce a vastly superior guide to the same information. I hope that this present work arms at least one honest and conscientious handwriting expert with the intellectual weapons needed to answer the ill-founded, though presumably well meant, attacks from opponents of expert handwriting evidence in courts of law. If but one of these three things happens even once, my efforts will have been worth the while. If they all become the norm, then the small contribution this monograph makes to achieving that norm will mean that I would have made at least a partial payment on the debt I owe the community of handwriting experts for all the benefits I have received in being a part of it.

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